

Calendar

Thursday, Oct. 4

1 p.m.
[ILC ALCPG Physics and Detector R&D Seminar](#) - West Wing, WH-10NW
 Speaker: S. Magill, Argonne National Laboratory
 Title: A Critical Look at the Status of PFA for the SiD Concept

2:30 p.m.
 Theoretical Physics Seminar - Curia II
 Speaker: W.-Y. Keung, University of Illinois, Chicago
 Title: Collider Phenomenology of Unparticles

3:30 p.m.
 DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
 THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

Friday, Oct. 5

12 p.m.
 Wellness Works Brown Bag Seminar - One West
 Speaker: S. Broy, Illinois Bone and Joint Institute LLC
 Title: Are You Fit to a T?

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

4 p.m.
[Joint Experimental-Theoretical Physics Seminar](#) - One West
 Speaker: L. Hsu, Fermilab
 Title: Recent Results from KamLAND

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

Weather

 **Mostly sunny 81°/62°**

[Extended Forecast](#)

[Weather at Fermilab](#)

Feature

Fermilab scarecrow ready to electrify St. Charles festival



Docent Mary Hawthorne proudly displays scarecrow Ben Franklin's head.

Benjamin Franklin's disembodied head haunted Wilson Hall this week. A few employees saw the top of his bald head turning a corner. Some caught a glimpse of his bemused expression. Others stared at his glowing eyes.

Several people jumped back.

"One guy nearly walked into a wall, when he saw me carrying the head on a stick," said docent Mary Hawthorne, the head's creator and escort.

The head will join its body at the St. Charles Scarecrow Festival held Friday through Sunday in Lincoln Park on Main Street.

For the last four years, Fermilab has submitted automated entries to the festival. Fermilab entries always have something to do with a scientist, said Education Program Leader Sue Sheehan.

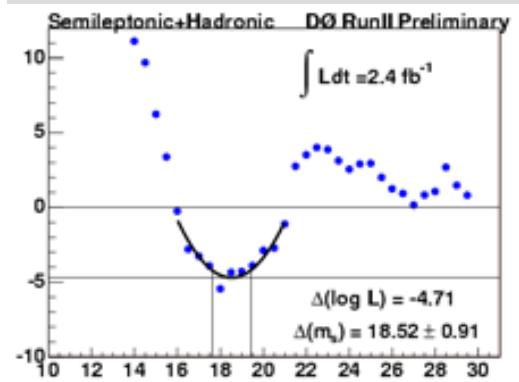
An electrified Ben Franklin with glowing eyes, rotating head, lightning-zapped kite and a soundtrack of thunder claps makes up this year's entry.

Hawthorne, Todd Johnson, of the AD, and docent David Seymour assembled Franklin at Site 37 from PVC pipes, straw and Johnson's private collection of small motors and light-up toy parts.

"I love getting to do the special effects and

Fermilab Result of the Week

An identity crisis



This figure shows a calculation of the most likely frequency for the flavor mixing in neutral B_s meson events seen at the DZero experiment.

The neutral, strange B meson (B_s) has a problem. While most mesons have a consistently clear picture of who they are, the neutral B_s meson constantly faces a crisis of identity. A feature of the electroweak interactions occurring within the B_s meson allows it to spontaneously transform into its own antiparticle. In this dire need for a therapist and a couch, researchers from the DZero collaboration are very willing to listen.

The B_s meson is a bound state of a strange quark and a bottom antiquark, and in such close quarters the quarks interact by exchanging W bosons. Via a phenomenon known as flavor mixing, these interactions can transform the B_s meson into its antiparticle.

Theory predicts that this mixing should occur at a well-defined frequency, and a precision measurement could provide a probe for a range of new physics. The Tevatron is currently the only place in the world where this frequency can be measured. DZero's [spring 2006](#) result set the world's first upper and lower limits at 17 to 21 inverse picoseconds (ps^{-1}) at 90% confidence level.

To understand the true identity of this meson-in-crisis, DZero researchers had to reconstruct its entire life's time line. The B_s is born together with an anti- B particle, which both decay rapidly. By carefully measuring how far

Current Security Status

Secon Level 3

Wilson Hall Cafe

Thursday, Oct. 4

- Southwestern chicken tortilla
- Philly style cheese steak
- *Garlic herb roasted pork
- Mediterranean chicken packages
- Southwestern turkey wrap
- Assorted slice pizza
- *Marinated grilled chicken Caesar salads

*Carb restricted alternative

[Wilson Hall Cafe menu](#)

Chez Leon

Thursday, Oct. 4

Dinner

- Shrimp bisque
- Grilled pork tenderloin w/ peach & ginger sauce
- Honey roasted root vegetables
- Hazelnut cake w/frangelico
- Crème anglaise

Wednesday, Oct. 10

Lunch

- Middle Eastern cornish hens
- Lentil rice
- Stuffed plum tomatoes
- Almond baklava

Chez Leon menu

Call x4598 to make your reservation.

Archives

Fermilab Today

Result of the Week

Safety Tip of the Week

ILC NewsLine

Info

work behind the scenes," Johnson said. "I never stopped being a kid."

Seymour and Hawthorne constructed the scarecrow's skeleton and burlap head. Johnson was in charge of the sound of a thunderclap, the voice of Ben Franklin and the special effects that make the scarecrow's plasma-disc eyes spark.

Participating in the scarecrow festival is a great opportunity to build a relationship with St. Charles and spread the word about science, Sheehan said. The laboratory also provides booths with hands-on science activities at the festival. Past Fermilab scarecrows include an electric-powered, bicycle-pedaling Einstein and the father of relatively in repose with dreamy theories floating above his head.

For more information on the festival, visit the St. Charles Chamber of Commerce [Web site](#).

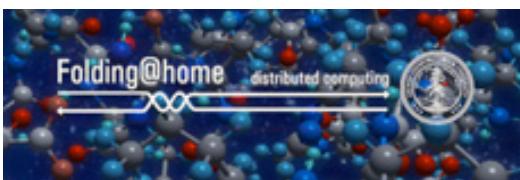
--Haley Bridger



From left: Mary Hawthorne, David Seymour and Todd Johnson with their unfinished creation. The finished scarecrow will be on display at the St. Charles Scarecrow Festival this weekend.

From iSGTW

One petaflop and a whole lot of PLAYSTATION



Since PLAYSTATION joined Folding@home in March 2007, participation by the PS3 user community has been phenomenal, providing Folding@Home with immense computing power that is helping to fast forward its research and reach one petaflop. *Image courtesy of Folding@home*

each meson traveled before decaying, a time line can be established. By reconstructing the available decay particles, each meson's flavor status (meson or antimeson) at the time of decay can be determined. Differences in flavor at production and decay time yield crucial evidence on how the B_s meson's identity is oscillating.

In 2.4 inverse femtobarns of data, DZero researchers have measured an oscillation frequency of $18.52 \pm 0.91 \text{ ps}^{-1}$, a 3.1 sigma result. Several advances in experimental technique made this possible: DZero's upgraded silicon detector and event-by-event correction factors improved the decay length measurement, and difficult new B_s decay modes were included along with a new flavor-tagging method. This large effort has indeed helped clarify the B_s meson's identity, and will improve understanding of other quark-mixing parameters. As data from the Tevatron piles up, DZero is keeping the therapist's couch free, carefully listening for even more insight into this particle's mixed identity.



Primary analyzers of the neutral B_s mixing analysis put in a great effort to improve all aspects of the analysis.



The efficiency and good quality of the data from

Fermilab Today
is online at:
www.fnal.gov/today/

Send comments and
suggestions to:
today@fnal.gov

PLAYSTATION 3 and Stanford University's Folding@home program recently announced their achievement of one petaflop, the first time such a milestone has been reached on a distributed computing network.

A petaflop is the ability to do one quadrillion floating point operations per second (FLOPS), the equivalent of every person on the planet perform 75,000 calculations every second.

"The recent inclusion of PS3 as part of the Folding@home program has afforded our research group with computing power that goes far beyond what we initially hoped," said Vijay Pande, Associate Professor of Chemistry at Stanford University and Folding@home project lead.

[Read More](#)

In the News

DOE launches Change a Light, Change the World campaign

From *DOE NEWS*, Oct. 3, 2007

Encourages Americans to pledge to change one light to an efficient compact fluorescent lightbulb

U.S. Department of Energy (DOE) Secretary Samuel W. Bodman today launched the 2007 Change a Light, Change the World campaign encouraging every American to change at least one light at home to an ENERGY STAR (r) Compact Fluorescent Light bulb (CFL). These bulbs are estimated to use 75 percent less energy than standard bulbs and last up to ten times longer, resulting in fewer greenhouse gas emissions and substantial energy savings. This national call to action encourages all Americans to help change the world, one light - one energy-saving step - at a time.

[Read more](#)

In the News

the silicon tracking detector is crucial for this analysis and many others. The DZero silicon team is making an extraordinary effort during the current Tevatron shutdown to further enhance the performance of this detector.

[Result of the Week Archive](#)

Announcements

[Have a safe day!](#)

RSVP for Amy Lee Segami lecture before Oct. 10

In celebration of Illinois Arts Week, the Fermilab Art Gallery will host a public lecture by Amy Lee Segami from 1-2 p.m. on Friday, Oct. 12 in One West. The lecture will explore the "Probability of Certainty in Creative Problem Solving Technique" along with a demonstration of Suminagashi. A one-hour tour of Fermilab will follow the lecture. The event is free and open to the public. Please RSVP before Oct. 10 by contacting [Georgia Schwender](#).

Register for S/CII training

Technical personnel and managers can sign up for suspect/counterfeit items identification training. Training is scheduled to take place Oct. 16-18 at Argonne National Laboratory. You may register until Oct. 9 at the Fermilab Professional Development [Web site](#).

Health and Wellness Fair Oct. 11

Fermilab's Employee Health and Wellness Fair will take place from 11 a.m. to 2 p.m. on Thursday, Oct. 11, 2007.

Word 2003: Introduction Oct. 10

Learn to create, edit, format and add tables to basic business documents with Word 2003 through this training course. For more information, please visit the [Web site](#).

Sexual harassment training Oct. 9, 10

The Office of Professional & Organization Development offers sexual harassment training for FNAL employees on Oct. 9. Training for managers and supervisors is on Oct. 10. Training only will be offered once this fall. It is intended to raise awareness of issues surrounding workplace sexual harassment discrimination. Employees can find more information and enroll online [here](#). Supervisors or managers can enroll [here](#).

Wellness brown bag seminar Oct. 5

Wellness Works and the U.S. Bone and Joint Decade will present a Brown Bag Seminar from noon to 1 p.m. on Friday, Oct. 5, in One

Panel picks Chicago's top 10 scientific feats

From *Chicago Tribune*, Oct. 3, 2007

Cell phones, nuclear reactions, skyscrapers and the top quark made the top 10.

The zipper and the Ferris wheel weren't so lucky.

A jury of Chicago area science professionals unveiled their list of the area's 10 most important scientific achievements Tuesday at Daley Plaza, part of the kickoff for the second annual Chicago Science in the City, a two-week program featuring science carnivals, museum exhibits, demonstrations, lectures, films and workshops.

[**Read more**](#)

West. Susan Broy, M.D. from the Illinois Bone and Joint Institute LLC will present "Fit to a T," an educational program about bone health and osteoporosis.

International Folk Dancing tonight

International Folk Dancing will meet tonight at Kuhn Barn on the Fermilab site. Dancing begins at 7:30 p.m. with teaching and children's dances earlier in the evening and request dancing later on. Newcomers are welcome. You do not need to come with a partner. More information is available by calling (630) 840-8194 or (630) 584-0825 or e-mailing folkdance@fnal.gov.

Additional Activities