

## Calendar

[Have a safe day!](#)

Thursday, Oct. 21  
10 a.m.

Diversity Council Lecture -  
Ramsey Auditorium  
Speaker: Laura Lewis-Barr  
Title: Dealing with Difficult  
People  
2:30 p.m.

[Theoretical Physics](#)[Seminar](#) - Curia II

Speaker: Antonio Delgado,  
University of Notre Dame  
Title: The S-MSSM: The  
Singlet Saves the Day  
3:30 p.m.

DIRECTOR'S COFFEE  
BREAK 2nd Flr X-Over  
THERE WILL BE NO  
ACCELERATOR  
PHYSICS AND  
TECHNOLOGY SEMINAR  
TODAY

Friday, Oct. 22

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

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

Speaker: Ofer Lahav,  
University College London  
Title: Testing the Dark  
Energy Paradigm with the  
Dark Energy Survey  
(in conjunction with the  
Dark Energy Survey  
collaboration meeting)

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

[Upcoming  
conferences](#)

## Feature

## APS honors Fermilab's Eichten and Quigg with 2011 Sakurai Prize



From left: Chris Quigg, Ken Lane, Ian Hinchliffe and Estia Eichten will receive the 2011 Sakurai Prize for their famous paper, "Supercollider Physics."

More than 25 years ago, four theorists spent many a late night drafting a map for hadron colliders to explore energy regions at the Tevatron and beyond. Their efforts resulted in producing the ultimate guidebook that influenced the design and early analyses from particle accelerators and experiments over the past two decades and still has a large impact today.

The American Physical Society will honor these four theorists, Estia Eichten of Fermilab, Ian Hinchliffe of Lawrence Berkeley National Laboratory, Kenneth Lane of Boston University and Chris Quigg of Fermilab, with the [2011 J. J. Sakurai Prize for Theoretical Particle Physics](#). They will receive the prize for their work "to chart a course for the exploration of TeV scale physics using multi-TeV hadron colliders," according to the APS citation.

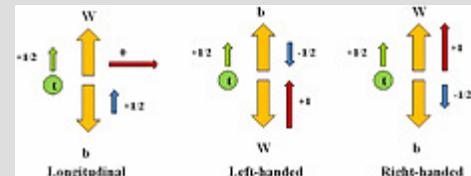
"Their work has been the physics bible for all of us," said Fermilab Director Pier Oddone. "It has told us about the physics to come, and now we are about to find out what nature has in store for us. Their efforts are still very valuable to the field of particle physics today, and this recognition couldn't come at a more appropriate time."

[Read more](#)



## Result of the Week

## Measurement of W spin from CDF top quark decays



The above diagram shows the top quark at rest and decaying into a W boson and a b quark. In the top quark rest frame, the W boson and b quark move back-to-back, as shown by the yellow arrows. This image also shows the directions of spin for the top quark (green arrow), b quark (blue arrow) and W boson (red arrow) for three different spin states of W boson. A more technical plot is available [here](#).

At the Tevatron, top quarks are predominantly produced with an anti-quark.

In the Standard Model, all other quarks produced in collisions first combine with one another to form bound states before decaying to lighter quarks or interacting in the detector. This complicates scientists' study of the quarks' properties.

However, as a result of its large mass, the top quark's lifetime is a trillionth of a trillionth of a second. This provides us with a clean way to test the Standard Model and to probe for possible new physics.

The idea of spin is familiar. A common example is that of the Earth, which rotates about an axis tilted 23.5 degrees. The tilt of the Earth's rotation is responsible for the four seasons. Determining the direction of the spin is important both on our scale and also on the scale of particle physics. Measuring the properties of the W boson resulting from top quark decay, such as spin, allows us to test the theoretical predictions of quantum mechanics and particle physics. The spin of the W is defined as the orientation of its spin axis, or vector, in relation to its direction of motion. The spin of the W is restricted by quantum mechanics and can only take a set of discrete values relative to its direction of motion: right-handed, left-handed or

## Campaigns

[Take Five](#)[Tune IT Up](#)

## Weather

Sunny  
58°/33°[Extended Forecast](#)  
[Weather at Fermilab](#)

## Current Security Status

[Secur Level 3](#)

## Wilson Hall Cafe

Thursday, Oct. 21

- Breakfast: apple sticks
- Minnesota wild rice w/ chicken
- Tuna melt on nine grain
- \*Italian meatloaf
- Chicken casserole
- Buffalo krispy chicken wrap
- Assorted sliced pizza
- Mandarin chicken

\*Carb restricted alternative

[Wilson Hall Cafe Menu](#)

## Chez Leon

Thursday, Oct. 21  
Dinner

- Crab cakes w/ red pepper mayonnaise
- Medallions of beef
- Potato cups
- Sauteed zucchini
- Grand Marnier soufflé

[Chez Leon Menu](#)

Call x3524 to make your reservation.

## Archives

[Fermilab Today](#)[Director's Corner](#)[Result of the Week](#)[Safety Tip of the](#)

From left: Estia Eichten, Ian Hincliffe, Ken Lane and Chris Quigg at the 1984 Snowmass Summer Study on the Physics of the Superconducting Super Collider, the conference where the authors first presented their paper.

-Elizabeth Clements

## Special Announcement

## Dealing with difficult people: administrative event today

## Dealing with Difficult People

By Laura Lewis-Barr (Host Consulting)  
Thursday, October 21, 10:00  
Case 9  
10:00 - 11:30 am  
Fermilab

A 90 minute presentation for any and all administrative employees. Attendees will learn skills that will help them work more effectively and efficiently with difficult people.

The workshop will explore:

- How to tell the verbal and psychological needs of our customers

- Recognizing emotional messages in others and ourselves

- Using active listening and the CDF strategy to defuse conflict situations and convert angry customers into happy ones.



An event to help administrative employees learn skills to best deal with difficult people will take place at 10 a.m. today in Ramsey Auditorium.

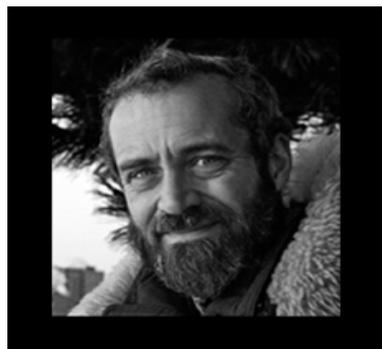
During her 90-minute workshop, speaker Laura Lewis-Barr will teach strategies and

skills to work more effectively and efficiently with difficult people. The workshop will cover meeting the service and psychological needs of customers, recognizing emotional messages in others and ourselves and using strategies and techniques to defuse conflict situations and convert angry customers into happy ones.

All administrative professionals are welcome.

## Feature

## Climatologist to talk Friday about the future of climate



While fossil fuels and carbon emissions have become buzzwords in the climate change debate, the story of how that carbon is affecting the Earth is not always

longitudinal (in the direction of motion).

In the Standard Model theory the fraction of events with right-handed spin ( $f_+$ ) is almost zero while the fraction of events with longitudinal spin ( $f_0$ ) is about 70 percent. If they exist, new particles or new forces might make the fraction of longitudinal and right-handed events significantly different from the Standard Model expectation.

CDF has adapted a powerful analysis technique originally used to precisely determine the top-quark mass ([Fermilab Today for Aug. 10, 2006](#)) to instead determine these W spin fractions in events containing both a top quark and anti-top quark pair.

This technique allows us to make more precise measurements in comparison to other analyses for this measurement. From a sample of 828 candidate events CDF determines using a model independent fit to the data.

$f_0 = 0.879$  with an uncertainty of  $\pm 0.123$ ,  
 $f_+ = -0.151$  with an uncertainty of  $\pm 0.088$ .

This result, recently published in *Physical Review Letters*, is based on 2.7 inverse femtobarns of CDF data. It is the most precise measurement of the longitudinal spin so far and agrees with expectations for the Standard Model.

[More information](#)

-- Edited by Andy Beretvas and GP Yeh



Front row from left: Mousumi Datta and Douglas Glenzinski, Fermilab. Second row from left: Florencia Canelli, University of Chicago and Fermilab; and Ricardo Eusebi, Texas A&M.

## Special Announcement

## Chickenpox spotted at laboratory

A laboratory employee was diagnosed with chickenpox this week. The virus is spread

[Week](#)[CMS Result of the](#)[Month](#)[User University](#)[Profiles](#)[ILC NewsLine](#)

## Info

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clear. In his lecture on Oct. 22, "The Long Thaw: How Humans are Changing the Next 100,000 Years of Earth's Climate," Dr. David Archer, one of the world's leading climatologists, will present some of the latest scientific findings on how carbon is cycled between the atmosphere, the ocean and the land.

Archer is a professor in the Department of the Geophysical Sciences at the University of Chicago, where he studies Earth's carbon cycle and its interaction with global climate. In his research and writing, he has addressed the complexity of the global carbon cycle. The more fossil fuel is burned, the more this balance shifts toward CO<sub>2</sub> in the atmosphere. The effects of this imbalance could last for hundreds of thousands of years. This is dangerous news for the ice sheets in Antarctica and Greenland, which, if melted, could ultimately raise sea level by tens of meters.

Archer is the author of several outreach books on climate change, including "The Global Carbon Cycle," a primer in climate science; the award-winning "The Long Thaw;" and several college texts for non-science majors. He teaches classes on global warming, environmental chemistry and global biogeochemical cycles, and is regular contributor to the climate science blog site [realclimate.org](http://realclimate.org).

The lecture is at 8 p.m. in Ramsey Auditorium. Admission is \$7. The event is sponsored in part by the Chicago Council on Science and Technology ([C2ST](#)), an organization which provides a forum for Chicago's scientific leaders to discuss current issues in science.

[Learn more](#)

## In the News

### Heavy atoms set to collide at the LHC

From *New Scientist*, Oct. 20, 2010

The world's most powerful particle smasher is moving on to heavy ions in its bid to explore the universe's first microseconds.

The Large Hadron Collider at CERN, near Geneva, has already met its 2010 target for the number of proton collisions. It is set to start colliding lead ions in November.

"It's one of the largest steps that any collider has made over its predecessor,

primarily through contact with the infected individual while the person has the rash or five days prior to that. Individuals who have had chickenpox in the past or have been vaccinated are unlikely to contract the virus. Learn more about chickenpox [here](#).

## Accelerator Update

Oct 18-20

- Four stores provided ~29 hours luminosity
- Pelletron problems required access to repair
- TeV F4 pond water pump strainer clogged
- Vacuum valves closing caused TeV abort
- Recycler, MiniBooNE, Pbar, and Booster accesses

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

## Announcements

### Latest Announcements

[Employee Art Show: April 2011](#)

[Fermilab Arts Series presents Project Trio: Greg Pattillo \(beatbox flute\); Eric Stepheson \(cello\); and Peter Seymour \(jazz bass\)](#)

[Accepting nominations for Director's Award](#)

[Toastmasters - Oct. 21](#)

[Argentine Tango through Nov. 3](#)

[Accelerate to a Healthy Lifestyle program](#)

[Fright Fest discount tickets at Six Flags](#)

[Chicago Blackhawks discount tickets](#)

[Regal Movie Theater discount tickets available](#)

[GD&T Introduction and Fundamental Principles class - Oct. 28 & 29](#)

[PowerPoint 2007: New Features class - Oct. 28](#)

[Outlook 2007: New Features class - Oct 28](#)

possibly the largest in history," says John Jowett, head of heavy ion operations at the LHC. As the ions smash into each other they will create a fireball of the quarks and gluons that make up protons and neutrons. The collision energies should far outstrip those achieved by the current record holder, the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory in New York.

[Read More](#)

[Introduction to COMSOL Multiphysics 4.1 and Its Electromagnetic Waves Simulation Capabilities tutorial - Oct. 26](#)

[Facilitating Meetings That Work class - Nov. 4](#)

[Management and Negotiation Skills class - Nov. 9 & 16](#)

[Word 2007: Intro class - Nov. 9](#)