

Calendar

Thursday, May 11

11:00 a.m. Academic Lecture Series - Curia II Speaker: D. Green, Fermilab
Title: High-pt Hadron Collider Physics – Course 8 (2nd Lecture)

2:30 p.m. Theoretical Physics Seminar - Curia II

Speaker: F. Petriello, University of Wisconsin/Fermilab

Title: Getting Ready for the LHC: QCD at Next-To-Leading Order and Beyond

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

4:00 p.m. Accelerator Physics and Technology Seminar - 1 West Speaker: M. Furman, Lawrence Berkeley National Laboratory

Title: Electron Cloud Simulations for the LHC and Main Injector

Friday, May 12

1:30 p.m. Briefing on EPP2010 report - Ramsey Auditorium

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

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

Speaker: G. Manca, University of Liverpool

Title: Searches for Supersymmetry in Multilepton Signatures With the CDF Detector

8:00 p.m. Fermilab International Film Society presents *Monty Python and the Holy Grail* - Ramsey Auditorium

Saturday, May 13

8:00 p.m. [Best of Second City](#) - Ramsey Auditorium

From the Director

The recent EPP2010 report, *Revealing the Hidden Nature of Space and Time*, has special relevance to the future of Fermilab. I encourage all Fermilab employees to attend a briefing on the report by EPP2010 members Sally Dawson and Chuck Shank, on Friday at 1:30 p.m. in Ramsey Auditorium.

--Pier Oddone

Message from Harold Shapiro, EPP2010 Chair

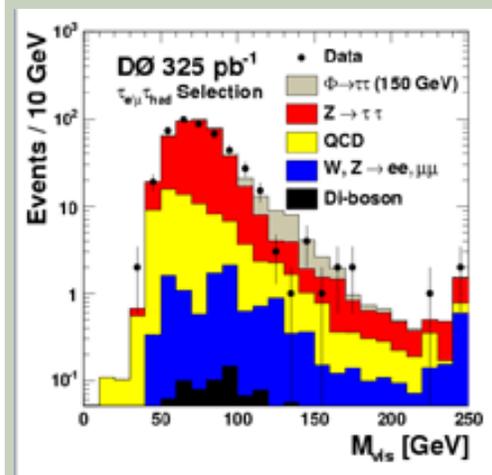


Harold Shapiro is chair of the National Academies' EPP2010 committee. (Click on image for larger version.)

As chair of the National Academies' EPP2010 committee, the last 18 months have been an intellectual adventure. The journey was sometimes discouraging, sometimes inspiring, and finally quite exhilarating as I came to more fully appreciate the thrill of the emerging scientific agenda in particle physics. I am grateful to have had this opportunity and delighted to have begun to understand (and come to share) the enthusiasm and excitement that currently characterize the elementary particle physics community worldwide. Indeed, particle physics is facing its most compelling scientific agenda in a generation. The task before our committee was to recommend a

Fermilab Result of the Week

Hunting for SUSY-Higgs with Taus



Distribution of the reconstructed Higgs boson (tau lepton pair) mass. The red histogram shows the prediction of current models, while the dark yellow histogram indicates how a signal due to SUSY Higgs production would appear in the data. (Click on image for larger version)

One area where modern theories remain incomplete is the explanation why the matter particles that make up our universe carry the masses we observe. Furthermore, the solution most natural to the Standard Model of particle physics is increasingly regarded as insufficient. A modern theory, called Supersymmetry (or SUSY), attempts to remedy this issue by postulating a set of new particles (superpartners) paired with each particle already observed. In its simplest form, SUSY predicts five different particles (called Higgs bosons) responsible for particle masses. As they are all unstable, they decay to other particles quickly after being produced. The three neutral Higgs bosons (the other two are charged) can decay to pairs of tau leptons (heavy brethren of electrons: $m_{\text{tau}} \sim 3500m_e$), which represents a rare

For links to events, click [here](#).

Weather



Rain 53°/40°

[Extended Forecast](#)

[Weather at Fermilab](#)

Current Security Status

[Secou Level 3](#)

Wilson Hall Cafe

Thursday, May 11

- Tomato Florentine
- Grilled Chicken Cordon Bleu Sandwich
- Chimichangas
- Chicken Marsala
- Smoked Turkey Melt
- Assorted Pizza
- SW Chicken Salad with Roasted Corn Salad

[Wilson Hall Cafe Menu](#)

Chez Leon

Thursday, May 11

Dinner

- Zucchini Pancakes w/Smoked Salmon & Yogurt Dill Sauce
- Veal Rib Chops w/Sun Dried Tomatoes & Capers
- Fettuccini Alfredo
- Amaretto Soufflé w/Frangelico Crème Anglais

Wednesday, May 17

Lunch

- Antipasto Salad
- Apricot Mousse with Butter Cookies

[Chez Leon Menu](#)

Call x4598 to make your reservation.

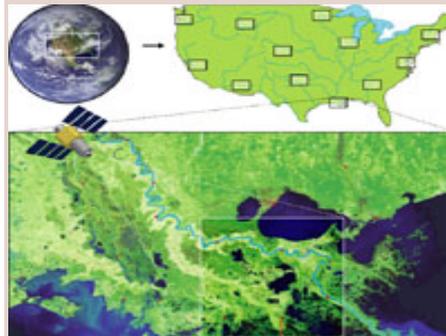
Search

strategic vision and a set of priorities that would stand the best chance of enabling the U.S. program to fully participate in the unfolding of this agenda.

The product of our long effort, assisted mightily by our colleagues here and abroad, *Revealing the Hidden Nature of Space and Time: Charting the Course for Elementary Particle Physics*, represents our response to this challenge. Two of my colleagues from the committee, vice chair Sally Dawson and committee member Charles Shank, will be sharing the report with the Fermilab community this Friday. Just a few weeks later, and as part of the annual users meeting, committee member Norman Augustine and I will be at Fermilab, in part to discuss the report at greater length. [read more](#)

Science Grid This Week

CLEANER's Vision for the WATERS Network



Hypothetical scope of the WATERS Network.

As population levels and the rate of urban development rise, our society grows increasingly concerned with balancing the need to maintain water supplies of adequate quantity and quality for human use with preserving the integrity of aquatic ecosystems. Common practices associated with modern living often negatively impact the environment. Commercial fertilization of agricultural fields can result in significant run-off of

physical signature in the data. Detecting an excess of events with tau pairs beyond that predicted by current models could indicate new physics. However, taus also decay very quickly (less than a trillionth of a second) and are hard to identify.

To overcome this challenge, Dzero utilizes a sophisticated pattern recognition process using neural networks. These are mathematical models that mimic the way the brain processes information. This process allows physicists to identify taus, hence Higgs-like events, and thereby constrain the theoretical parameters of SUSY. Although 17 candidate events are currently observed in the DZero data, they are consistent with the standard model, hence offering no evidence of new physics. This result complements a previous search pioneered by DZero for events containing at least three b quarks (Result of the Week 4/14/2005). By combining these two searches, DZero is able to constrain an even broader range SUSY Higgs models and allow us to gauge the good potential of the Tevatron to discover SUSY Higgs bosons, if they exist, in the future.



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nutrients and microorganisms into nearby surface waters. In some U.S. cities, untreated stormwater, containing substantial loadings of pathogens and chemicals, is discharged into the nearest body of water. And along some major U. S. rivers, drinking water intakes are located downstream from wastewater treatment plants. Because many of these issues are tied to where people live and work, scientists and engineers must also factor in social and economic impacts when considering solutions to these problems.

[Read More](#)

In the News

The Courier News **May 10, 2006:** **Maintaining Fermilab at physics frontier**

Mention the words "particle physics" and most people begin to go cross-eyed. But the study of this arcane subject has led scientists around the world to a greater understanding of how the universe is formed, what is inside an atom and what new particles are out there in space. For years, brilliant American scientists have dominated the field of particle physics and the investigations into the nature of matter, space, energy and time — the very origins of the universe itself.

But now, some of our most prominent researchers are worried we will lose ground in this very important field. "The U. S. position of leadership is not secure," reports a group of scientists connected to the National Academies. We face competition from Japan and Europe, and the U.S. scientists warned that in order to retain our lead in this field, we need to support the next state-of-the-art particle

Above: This analysis was contributed to by (left to right) Maxim Titov, Carsten Noeding, Ingo Torchiani and Volker Buescher (University of Freiburg). **Below:** Stefan Anderson, Susan Burke, and Ken Johns (not pictured) of the University of Arizona are working on an upgrade of the Level-1 trigger system that allows a spatial match between energy deposits in the calorimeter and tracks found in the central detector. This new system will enhance substantially DZero's ability to trigger on final states containing taus in Run 2B.



[Result of the Week Archive](#)

Announcements

EPP2010 Committee members to speak at Fermilab tomorrow, May 12

The EPP2010 report made headlines on Thursday. What does it say about the future of Fermilab? Find out more tomorrow, when EPP2010 Committee member Chuck Shank and Committee co-chair Sally Dawson come to speak to the Fermilab community. They will discuss the report at a 1:30 p.m. meeting in the Ramsey Auditorium. Everyone at Fermilab is invited to attend.

The Fermilab Association of Rocketry

The Fermilab Association of Rocketry (FAR) is having it's monthly club launch on May 13, 2006 from 10am until 3pm. Join the club and the yearly dues for 2006 are waived. More details can be found at [the web site](#).

Striping D Road

The paving is complete on D Road. Striping is scheduled to begin

accelerator — a linear collider — a project that would impact residents of Illinois and northwest Indiana. If this new accelerator is built in the United States, it would be here, at the Fermi National Accelerator Laboratory in Batavia.

[Read More](#)

Wednesday morning May 10, weather permitting. Motorists should expect short delays and may choose to use [alternate routes](#). Please slow down, obey traffic controls and stay alert.

Batavia Road entrance closed to cars and bicycles

The Batavia Road entrance is closed for renovation now through Monday, May 22 at 4:00 p.m. During this time, the City of Warrenville will also be repaving roadways and carrying out other construction work along Batavia Road. Delays are expected to continue until early June, even after the entrance re-opens. Drivers and bicyclists should use Pine and Wilson Street entrances until the work is completed. Pine Street entrance hours are 6:00 a.m. to 8:00 p.m. for the general public and 24 hours a day, 7 days a week for employees. The Wilson Road entrance hours are 6:00 a.m. to 6:00 p.m., Monday through Friday. For more information, contact Tom Prosapio at prosapio@fnal.gov

Main Ring Road, near A0, closed Monday-Friday

A section of Main Ring Road in front of the A0 storage building will be closed from 7:00 a.m. Monday, May 8, to 5:00 p.m. Friday, May 12. The emergency closure is necessary to replace an oil switch. People using the A0 lot should allow time for a 4-mile detour. Detour signs will be posted.

[Upcoming Activities](#)