Fermilab Today

Thursday, June 5, 2008

Furlough Information

New furlough information, including an up-to-date Q&A section, appears on the furlough Web pages daily.

Layoff Information

New information on Fermilab layoffs, including an up-to-date Q&A section, appears on the layoff Web pages daily.

Calendar

Thursday, June 5
9 a.m.
Users Annual Meeting - Auditorium
THERE WILL BE NO PHYSICS AND DETECTOR SEMINAR THIS WEEK
THERE WILL BE NO THEORETICAL PHYSICS SEMINAR THIS WEEK
THERE WILL BE NO DIRECTOR'S COFFEE BREAK TODAY
THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY
6-7:30 p.m.
3rd Workshop on Physics - One West

Friday, June 6
THERE WILL BE NO DIRECTOR'S COFFEE BREAK TODAY
4 p.m.
Joint Experimental-Theoretical Physics Seminar - One West
Speaker: P. Nadolsky, Michigan State University
Title: Parton Distributions for the LHC Era
8:30 a.m. - 6:30 p.m.
3rd Workshop on Physics with a high intensity proton source - One West

Special Announcement

Users' Meeting today

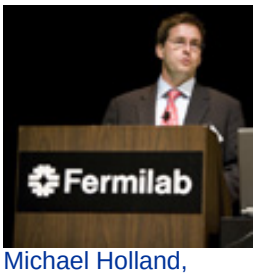
The annual Users' Meeting continues today, beginning at 9 a.m. and ending at 5:30 p.m. Today's speakers include NSF's Joe Dehmer; P5's Charlie Baltay, Fermilab's Young-Kee Kim and Director Pier Oddone. For more information on the Users' Meeting schedule or events, visit the Users' Meeting Web site.

Feature

Fermilab hears views from Washington, D.C.

The particle physics community is moving in the right direction to keep the field vital, but needs to increase the momentum amidst difficult budget times.

A series of talks Wednesday by Washington policy makers at the annual Users' Meeting focused on how Congress and funding agencies view particle physics and what those groups want to hear from the field in the future.



Michael Holland, examiner for the Office of Science projects for the Office of Management and Budget.

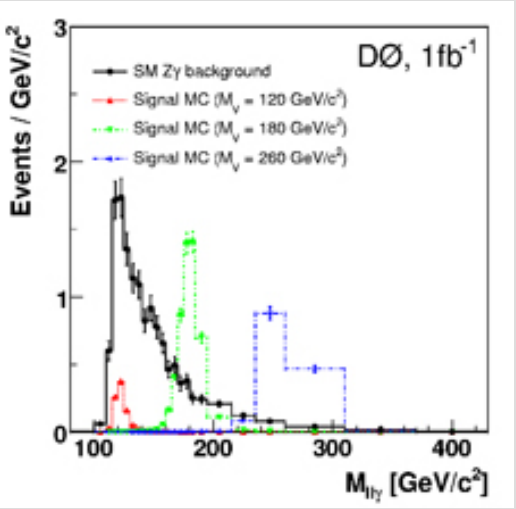
The particle physics community has made great strides in presenting scientific opportunities on the energy, intensity and cosmic frontiers and focusing on the excitement of discoveries on the horizon, said Michael Holland, examiner for the Office of Science projects for the Office of Management and Budget.

He called for the community to continue to engage further the public imagination in its research projects while also producing statistics for policy makers that show the broader benefits to the nation. Holland asked for more data on particle physics as a net exporter of talent and a pathway to national innovation.

The High Energy Physics Advisory Panel has undertaken a study of how many of those receiving degrees in particle physics go on to work in government, national and private

Fermilab Result of the Week

Things that go "bump" in the dark



This figure shows the invariant Z+photon mass spectrum expected for Standard Model processes, and the "bumps" predicted for three potential new physics models.

It's dark and you're wondering, "What was that bump that woke you?" Could it have been the house creaking? The dog? Something else? Your imagination runs wild, and you are unnerved by the unknown.

If you were 5 years old, you'd have already summoned your parental investigation team to check in the shadows and closets and under the bed.

Surprisingly, this is the scenario facing a team of DZero researchers: searching for a bump that could be almost anything. Researchers predict through theories that they will find only the things expected from Tevatron collisions. But until they've turned on the lights and looked carefully, the Tevatron may have something new lurking in the dark under the bed.

The Standard Model of particle physics describes a landscape of particle interactions that could occur in Tevatron collisions. Most physicists believe this description is incomplete and anticipate the existence of new phenomena. Many models for new physics predict particles that decay into a Z boson and a photon, which could be observed as a narrow mass resonance: a bump in the Z

Click here for NALCAL, a weekly calendar with links to additional information.

Weather

Sunny 92°/71°

Extended Forecast
Weather at Fermilab

Current Security Status

Secon Level 3

Wilson Hall Cafe

Thursday, June 5
- Tomato Florentine
- *Pork BBQ sandwich
- Olive & artichoke paella
- Smart cuisine: chicken Marsala
- Smoked turkey melt
- Assorted slice pizza
- SW chicken salad w/roasted corn salsa

Carb restricted alternative

Wilson Hall Cafe menu

Chez Leon

Thursday, June 5
Dinner
- Green bean, feta & walnut salad
- Medallions of beef w/ cabernet sauce
- Roasted baby potatoes
- Steamed asparagus
- Lemon yogurt cake with strawberries & cream

Wednesday, June 11
Lunch
- Parmesan crusted chicken
- Roasted potatoes w/ garlic and rosemary
- Vegetables of the season
- Blueberry tart w/ vanilla ice cream

Chez Leon menu
Call x4598 to make your reservation.

Archives

industry, including the fields of computing, medicine and finance.

"That will be essential for keeping you in the game," Holland said. "People may be your most important product."

Dr. Dennis Kovar, acting associate director for High Energy Physics at DOE's Office of Science.

The work of the particle physics community to develop a "realistic, robust" P5 roadmap recently approved by HEPAP also strengthens the case for particle physics funding, said Dr. Dennis Kovar, acting associate director for High Energy Physics at DOE's Office of Science.

The report sets the stage for the United States to become a world leader at the intensity frontier, building on Fermilab infrastructure, and to make exciting discoveries at the energy and cosmic frontiers, "There really is an exciting future," he added. "The question is how do you get from here to there in terms of resources and making a case."

The large number of particle physics connections with universities in dozens of states creates a great political asset for the field, said Adam Rosenberg, a Congressional staffer for the House Committee on Science and Technology. He stressed strengthening ties with other scientific fields as well.

The FY2009 budget scenario will require combined efforts because it is shaping up to be "eerily similar" to the FY2008 budget and could lead to a holding pattern in funding until the arrival of a new administration.

A continuing resolution likely would prolong the severe budget challenges for particle physics, Kovar said.

"We will do our best to ensure a world-class, strong program with the resources available," he added.

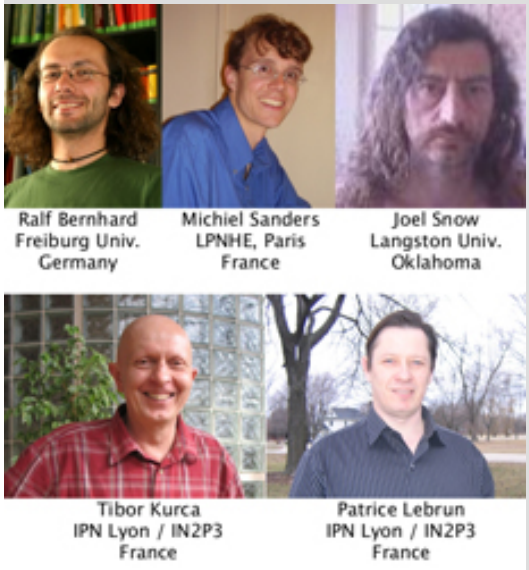
-- Tona Kunz

From *symmetry breaking*

+photon mass spectrum. By analyzing events with a photon and two leptons consistent with a Z boson decay, DZero physicists can carefully search for something unexpected. Because they can't know what is hiding in the shadows, the scientists grouped potential unknown particles into two categories: zero electric charge scalar (spin-0) Higgs-like particles or vector (spin-1) particles like a Z-prime. By comparing the invariant Z-gamma mass spectrum with the predictions of the known sources of Z+gamma events, they can determine if evidence for something new exists.

The DZero collaborators searched for a Z-gamma mass bump in just over one inverse femtobarn of data and found no excess of events above the Standard Model predictions. This result allows them to set limits on the properties of new physics that would produce such a bump and provides assurance, for now, that the Standard Model is not hiding something unknown. But with more data flowing from the Tevatron every day, the opportunities to discover something new keep growing. And like any wise 5-year-old, these physicists know that just because you didn't find it this time, doesn't mean it won't bump again tomorrow night.

Read more



The DZero Monte Carlo production team facilitates the simulation of detector signatures for the vast range of physics processes observed in Tevatron collisions. These simulations are needed to compare observed data with theoretical predictions and are a key element in nearly all DZero analyses.

Fermilab Today

Result of the Week

Safety Tip of the Week

ILC NewsLine

Info

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

Send comments and suggestions to:
today@fnal.gov

Fermilab still in race for Higgs boson

Today is the first day of the Users' Meeting at Fermi National Accelerator Laboratory, the largest U.S. national laboratory for particle physics. Several hundred of the 2,300 physicists who are using Fermilab's infrastructure and accelerator complex to conduct experiments have gathered here at the laboratory to hear about the latest news in particle physics and to discuss plans for the future of the field. Fermilab provides a live video stream of this meeting.

"We have a packed agenda for the next two days," said Kevin Pitts, chairman of the Fermilab Users' Executive Committee, at the beginning of the meeting. The day started out with talks about the Fermilab accelerator complex, which provides the beams for collider experiments as well as neutrino experiments.

Ron Moore, of Fermilab's Accelerator Division, reported (PDF) that the performance of the Tevatron proton-antiproton collider reached new heights, increasing the opportunity for experimenters to make discoveries. The month of May provided more collisions than ever before, yielding 0.2 inverse femtobarns (the scientific unit used to count the number of collisions). The total number of collisions delivered to the two collider experiments, CDF and DZero, now exceeds 4 inverse femtobarns.

--Kurt Riesselmann

Read more

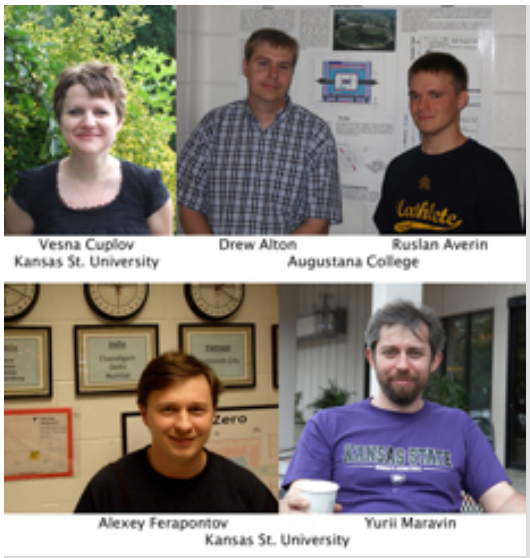
In the News

Nearby galaxies are chock-full of dark matter

From *New Scientist Space*, June 4, 2008

THE universe's darkest secret may be hiding not far from us. Three dwarf galaxies near the Milky Way appear to contain a higher proportion of invisible dark matter than any stellar system so far studied. If so, they are the ideal place to look to figure out what the stuff consists of.

Over the past three years, the Sloan Digital Sky Survey has identified Ursa Major II, Willman I and Coma Berenices Dwarf as small satellite galaxies of the Milky Way. Louis Strigari of the University of California, Irvine,



A team of DZero collaborators made primary contributions to this analysis.

Result of the Week Archive

Accelerator Update

June 2-4
- Four stores provided 33 hours and 17 minutes of luminosity
- NuMI Horn cooling system fails; Horn replacement begins
- Pbar sets New Stacking Record: 27.01 mA/hr
- I-Source water resistor flushed

Read the Current Accelerator Update
Read the Early Bird Report
View the Tevatron Luminosity Charts

Announcements

Have a safe day!

Heart risk screening June 10
Wellness Works and Delnor-Community Hospital will offer a heart risk screening on Tuesday, June 3, and Tuesday, June 10. The assessment will take place by scheduled appointment between 6:30 a.m. and 10:45 a.m. for Fermilab employees in the EOC on the ground floor of Wilson Hall. Those interested can sign up on the ES&H Web page. Participants must fast for 12 hours but can drink water.

June 6 deadline for The University of Chicago Tuition Remission Program
The deadline for applying for the tuition remission program at The University of Chicago for the Summer 2008 quarter is June 6. For more information and enrollment forms, contact Nicole Gee at x3697 or visit the Web

analysed the motion of their stars and found that they appear to be subject to a gravitational field equivalent to that of at least 1 million solar masses distributed around each galaxy. Yet each of these galaxies only shines as bright as 1000 suns, a discrepancy which leads Strigari to suggest that these galaxies are rich in unseen dark matter.

Read more

site.

International Folk Dancing June 5
International Folk Dancing will take place in Kuhn Barn this Thursday, June 5. Dancing begins at 7:30 p.m. with teaching and children's dances followed by request dancing. Newcomers are welcome. You do not need to come with a partner. Information at (630) 584-0825 or (630) 840-8194 or folkdance@fnal.gov.

Additional Activities