Fermilab Today

Thursday, Aug. 12, 2010

Calendar

Have a safe day!

Thursday, Aug. 12
2:30 p.m.
Theoretical Physics Seminar - Curia II
Speaker: Mikhail Stephanov, University of Illinois at Chicago
Title: Conformality Lost
3:30 p.m.
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

Friday, Aug. 13
1 p.m.
Particle Astrophysics Seminar - One West
NOTE DATE and TIME
Speaker: Pat McCarthy, Giant Magellan Telescope Observatory/Carnegie Observatories
Title: Status of the Giant Magellan Telescope Project
2:30 p.m.
Particle Astrophysics Seminar - One West
NOTE DATE and TIME
Speaker: Christopher Savage, Stockholm University
Title: XENON10/100 Dark Matter Constraints: Examining the Leff Dependence
3:30 p.m.
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
4 p.m.
Joint Experimental-Theoretical Physics Seminar - One West
Speakers: Amol Upadhye, University of Chicago and Jason Steffen, Fermilab
Title: Results of the GammeV-CHASE Probe for Chameleon Dark Energy

Click here for NALCAL, a weekly calendar with

Feature

DOE counterintelligence personnel here Thursday

Members from the Department of Energy's Chicago Office of Counterintelligence will visit Fermilab on Thursday, Aug. 12. They will set up a booth in the atrium of Wilson Hall to answer any employee questions.

This activity is part of the laboratory's Facility Counterintelligence Program. The program is required of all Department of Energy national laboratories.

The goals of Fermilab's program are:

1. To protect Fermilab personnel, research, technologies and information and cyber systems from unauthorized exploitation by intelligence collectors and intelligence activities.
2. To participate, as appropriate, in the national DOE effort to protect DOE personnel, projects, information/cyber systems and classified materials from unauthorized collection or exploitation by foreign intelligence practitioners.

Since Fermilab is a single-purpose research laboratory whose mission does not include classified research, the program excludes many comprehensive procedures required at other DOE laboratories.

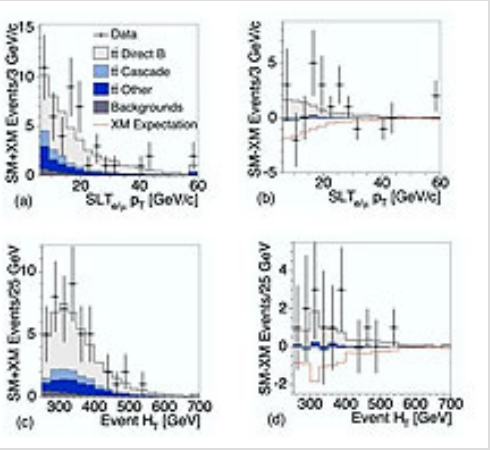
Employees should receive the laboratory's annual counterintelligence briefing via interoffice mail later today.

Photo of the Day

Taking the natural log

Result of the Week

It's the top



Distribution of the soft lepton tag track p_T for Standard Model + Exotic Model tags (a), track p_T for Standard Model - Exotic Model tags (b), event H_T for Standard Model + Exotic Model tags (c), and event H_T for Standard Model - Exotic Model tags (d). The expectation for a hypothetical exotic top quark is shown as the dotted red line.

Physicists have accepted the top quark as the missing piece of the Standard Model since the particle was discovered in 1995. Recently, however, theorists looked at an exotic model of particle physics that suggested that the top quark might be more exotic than it seemed.

Quarks generally contain a fraction of the electric charge. The proton has charge 1, and the electron has charge -1. The up, charm and top quarks have 2/3 the electric charge; while the down, strange and bottom quarks have -1/3 the electric charge. CDF physicists recently examined the idea that perhaps the particle thought of as the top quark is actually an exotic quark that looks and behaves like the top quark, but has electric charge of -4/3.

With more than 70 times the data that they had in 1995, both CDF and DZero collaborations can now precisely measure the top quark's mass, charge, lifetime, production and decay rates, its interaction with other types of quarks and leptons and other properties. CDF is doing just that, most recently analyzing the top quark's electric charge and refuting the exotic model claim.

The collaboration recently showed that the top quark CDF collaborators observed in their

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

Mostly sunny
93°/71°

Extended Forecast
Weather at Fermilab

Current Security Status

Secon Level 3

Wilson Hall Cafe

Thursday, Aug. 12
- Breakfast: Apple sticks
- Southwestern chicken tortilla
- Philly style cheese steak
- *Garlic herb-roasted pork
- Smart cuisine: Mardi Gras jambalaya
- *Southwestern turkey wrap
- Assorted sliced pizza
- *Marinated grilled chicken Caesar salad

**Carb restricted alternative*

Wilson Hall Cafe Menu

Chez Leon

FESS's Sue Quarto submitted this photo of turtles on a log.

In the News

Dark-matter search plunges physicists to new depths

From the ***University of Chicago News Office***, Aug. 11, 2010

This month physicist Juan Collar and his associates are taking their attempt to unmask the secret identity of dark matter into a Canadian mine more than a mile underground.

The team is deploying a 4-kilogram bubble chamber at SNOLab, which is part of the Sudbury Neutrino Observatory in Ontario, Canada. A second 60-kilogram chamber will follow later this year. Scientists anticipate that dark matter particles will leave bubbles in their tracks when passing through the liquid in one of these chambers.

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Likely suspects for what constitutes dark matter include Weakly Interacting Massive Particles (WIMPS) and axions. Theorists originally proposed the existence of both these groups of subatomic particles to address issues unrelated to dark matter. “These seem to be perfect to explain all of these observations that give us this evidence for dark matter, and that makes them very appealing,” Collar said.

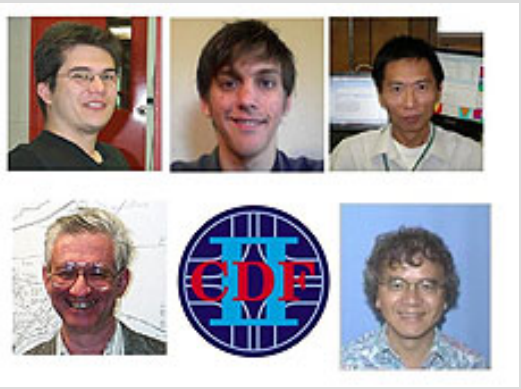
Read more

In the News

data agrees with the Standard Model version physicists have come to accept. A paper titled "Exclusion of an Exotic Top Quark with -4/3 Electric Charge Using Soft Lepton Tagging" recently submitted by CDF has been accepted for publication by *Physical Review Letters*.

More information

-- edited by Andy Beretvas and GP Yeh



Top row from left: John Paul Chou, Harvard/now at Brown; Ben Kietzman, Fermilab/Wheaton College now at Rochester; and Yen-Chu Chen, Academia Sinica, Taiwan. Bottom row: Andy Beretvas and GP Yeh, Fermilab.

Special Announcement

Air quality action day

The Environmental Protection Agency has issued an air quality action day for the Chicagoland area. Today's conditions are unhealthy for sensitive groups. Active children and adults, and people with lung disease, such as asthma, should reduce prolonged or heavy exertion outdoors. Learn more

Announcements

Latest Announcements

Wilson Hall west side road closed Thursday-Monday

Fermilab Singers concert Friday, Aug. 13 at noon

English country dancing this Sunday, Aug. 15

Grounding and Shielding of Electronic Systems course - Aug. 12 and 13

Free piano concert featuring Sandor Feher, Ramsey Auditorium at noon on Aug. 12

Thursday, Aug. 12
Dinner
- Closed

Wednesday, Aug. 18
Lunch
- Chicken, rice & tropical fruit salad
- Herbed green beans
- Cream puff w/ ice cream & caramel sauce

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

Info

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

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today@fnal.gov

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Gerson Goldhaber dies at 86; particle physicist discovered 'dark energy'

From ***Los Angeles Times***, Aug. 7, 2010

The UC Berkeley scientist played a key role in identifying the antiproton, psi and charm particles, and later helped show that the universe is expanding.

Gerson Goldhaber, a UC Berkeley physicist who played a key role in identifying some of the fundamental particles of nature, then switched careers and helped show that the universe is expanding rather than contracting, died of natural causes at his home in Berkeley on July 19. He was 86.

Goldhaber "was a great physicist and a wonderful human being," said George Trilling, a professor emeritus at UC Berkeley who worked with him. "The number of observations that he was responsible for was remarkable."

He "had an unerring sense of where great discoveries were to be made, from the antiproton to the psi and charm particles, and finally to dark energy," longtime colleague Robert Cahn of the Lawrence Berkeley National Laboratory said in a statement. He had "a special talent for turning abstractions into something for which he could have an intuitive sense," said Cahn, who co-wrote with Goldhaber "The Experimental Foundations of Particle Physics."

Read more

Singer and songwriter Claudia Schmidt performs in Fermilab Arts Series - Aug. 14

Martial arts classes begin today

Argentine Tango, Wednesdays, through Aug. 25

Bristol Renaissance Faire discount

Aug. 20 deadline for The University of Chicago Tuition Remission program

Applications for URA Visiting Scholars Awards due Aug. 20

Regal Movie Theater discount tickets available

What's New with NI and the latest version of LabVIEW (NI Week highlights)? - Aug. 19

Gizmo Guys - Fermilab Arts Series - Sept. 25

NIM and Physics Reports now completely online at Fermilab

Lunch & Learn about the power of preventative health care - Aug. 18

Submit an announcement