

Calendar

Have a safe day!

Thursday, Oct. 8

2:30 p.m.

[Theoretical Physics Seminar](#) -

Theory Conference Room WH-3NE

Speaker: Jesse Thaler, Lawrence Berkeley National Laboratory

Title: Cosmic Signals from the Hidden Sector

3:30 p.m.

DIRECTOR'S COFFEE BREAK

2nd Flr X-Over

4 p.m.

[Accelerator Physics and Technology Seminar](#) - One

West

Speaker: Luisa Chiesa, Tufts University

Title: Superconducting Magnets for Fusion Application

Friday, Oct. 9

3:30 p.m.

DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over

4 p.m.

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

Speaker: Fred Olness, Southern Methodist University

Title: QCD Puzzles, Predictions and Prognosis: What can ν do for you?

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

Campaigns

[Take Five](#)

[Tune IT Up](#)

Weather

Feature

Physics of Project X meeting to probe lab's future research

A meeting focusing on a key element of Fermilab's proposed future physics program will take place Nov. 9-10.

The [4th Workshop on Physics](#) with a High-

Intensity Proton Source will serve as a chance for high-energy physics community members to discuss the evolution of Project X's proposed design. They will also discuss Fermilab's research program at the intensity frontier and the physics opportunities associated with the proposed project.

"We have some new ideas we're excited about," said Bob Tschirhart, Fermilab scientist and workshop co-organizer. "We need critical review from the community, a cold-eye, scientific review to validate that our optimism is sound."

Last week, the ICD-2 Research Program Task Force released a [draft report](#) on the potential physics experiments that could be done with Project X based on a new conceptual design.

During a [Project X collaboration meeting](#) in September, collaborators discussed both the project's initial configuration design and a more recent significant modification to that design, ICD-2, which allows a more versatile physics program.

"The accelerator design has evolved to maximize our science," said Fermilab Deputy Director Young-Kee Kim.

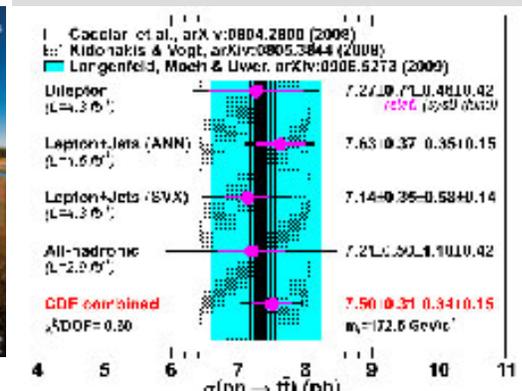
The new design of a high-power, low-energy, continuous-wave proton linac, followed by a pulsed linac or rapid cycling synchrotron, will offer excellent power and flexible timing of various secondary beams. These beams are best suited for rare-process and neutrino experiments, said Yoshi Kuno, Osaka University physics professor and workshop co-organizer.



A Project X poster for the Nov. 9-10 workshop.

Fermilab Result of the Week

Precision measurement of top quark pair production



Four measurements of the top quark pair-production rate, and their combination, compared to theoretical predictions. The combined result is in good agreement with and has a smaller uncertainty than the predictions from theory.

The top quark is the most massive fundamental particle ever observed. It has about the same mass as the far-from-fundamental gold nucleus, which contains about 200 nucleons.

Since its discovery by the CDF and DZero experiments in 1995, physicists have studied the properties and interactions of the top quark in detail.

A pair of top quarks is produced only once approximately every seven minutes at the Tevatron's peak instantaneous luminosity. The massive top quarks then live for less than a trillionth of a trillionth of a second. The fireworks from their energetic decay products provide distinct experimental signatures. The signatures are a golden ticket to finding the rare top quark events among the 1.7 million collisions per second. The three characteristic signatures are all-hadronic (46 percent of decays) with six or more jets of hadrons, lepton+jets (45 percent) with an energetic lepton, neutrino, and four or more jets, and dilepton (11 percent) with two energetic leptons, two neutrinos, and two or more jets.

Scientists at CDF have measured the top quark pair production rate in all three signatures. The recent combination of these measurements has an overall precision of 6 percent and is in excellent agreement with the theoretical prediction. The consistency of the separate measurements indicates that there

Rain
54°/41°

[Extended Forecast](#)
[Weather at Fermilab](#)

Current Security
Status

[Secon Level 3](#)

Wilson Hall Cafe

Thursday, Oct. 8

- Apple sticks
- Southwestern chicken tortilla
- Philly-style cheese steak
- Garlic herb roasted pork
- Mardi Gras jambalaya
- Southwestern turkey wrap
- Assorted slices of pizza
- Marinated grilled chicken
- Caesar salad

[Wilson Hall Cafe Menu](#)

Chez Leon

Thursday, Oct. 8
Closed

Wednesday, Oct. 14
Lunch

- Broiled tilapia with Thai coconut curry sauce
- Basmati rice
- Julienne of peppers
- Pear and ginger crisp

[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](#)

Project X would also be a natural first step toward new, more powerful facilities at Fermilab, such as a neutrino factory or muon collider," said workshop chair Stan Wojcicki. To explore these possible relationships, a muon collider workshop will immediately follow the Project X workshop. Both groups can attend a joint session in the afternoon on Nov. 10.

At the November workshop, collaborators will produce a white paper summarizing discussions at the workshop about Project X and the laboratory's potential physics program.

The collaboration will seek technical advice on Project X's ICD-2 from the Accelerator Advisory Committee, which convenes a week later. Collaborators hope the project will receive CD-0 in 2010.

Even if you don't attend the workshop, you can help collaborators rename Project X. A list of previously suggested names is available [here](#). Submit your suggestions via e-mail to [Young-Kee Kim](#)

-- *Rhianna Wisniewski*

Feature

FRA conducting director review

Fermi Research Alliance, Fermilab's management organization, began a review of Fermilab Director Pier Oddone this week. This laboratory process takes place every five years to determine whether the director should continue in his position.

Neal Lane, member of the Fermi Research Alliance (FRA) Board of Directors and Malcolm Gillis University Professor at Rice University, will chair the committee.



Fermi Research Alliance member Neal Lane will chair the committee.

The ad hoc FRA Committee will reach out to key stakeholders from the Department of Energy, Fermilab, Universities Research Association and the broader Fermilab High Energy Physics and national and international user communities throughout October for feedback about the director's performance in his first term. The committee will convene at Fermilab in mid-November to finalize its recommendations, which it will discuss at the FRA Board of Directors meeting in February

are no significant discrepancies in the rate of top quarks appearing in the different experimental signatures. This increases the confidence that the top quark is well understood. It also boosts confidence in the electroweak theory interpretation that the heavy top quark mass means the Higgs boson should be relatively light and, if it exists, could be within reach of the CDF and DZero experiments.

— *Edited by Craig Group*



The CDF scientists responsible for the top cross section measurements and their combination. Top row, from left: Alexei Varganov, Michigan; Alison Lister, Geneva; Tom Schwarz, UC Davis; Andrea Castro, Bologna. Bottom row: Evelyn Thomson, Penn; Charles Plager, FNAL; Richard Hughes, Ohio State.

Special Announcement

Chilean singer and guitarist will perform at lunch today

Nelson Sosa, a Chilean singer and guitar player, will perform at 11:45 a.m. Thursday in Ramsey Auditorium, followed by a raffle drawing, snacks and fruit-filled empanadas. Sosa's music is a mix of Latin rhythm, folk, tango and jazz.

After the performance, event organizers will hold a drawing from raffle tickets collected over the past month for prizes that include gift baskets, a Hispanic cookbook and CDs. Winners must be present in order to receive a prize. Thursday's event will be Fermilab's final event in celebration of Hispanic Heritage Month, which ends Oct. 15.

Accelerator Update

Oct. 5-7

- Two stores provided approximately 25.75 hours of luminosity
- Tevatron cyro and vacuum problems
- Tevatron B48 separator power problem

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

Info

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

Send comments and suggestions to:
today@fnal.gov

Visit the Fermilab [home page](#)

2010.

FRA committee members welcome confidential comments and feedback from the Fermilab and greater HEP community. Feedback can be sent via [e-mail](#) and will be treated in strict confidence for use solely by the committee (unless otherwise requested).

Committee members include:

- Chair: Neal Lane, FRA Board of Directors, Malcolm Gillis University professor at Rice University;
- Sally Dawson, Brookhaven National Laboratory;
- Ian Halliday, European Science Foundation, Scottish Universities Physics Alliance, FRA Board of Directors;
- Heidi Schellman, Northwestern University, FRA Board of Directors
- Frank Sciulli, Columbia University, FRA Board of Directors;
- Paul Steinhardt, Princeton University
- Stan Wojcicki, SLAC National Accelerator Laboratory/Stanford University.

In the News

Physicists seek to keep next-gen colliders in one piece

From *ScienceDaily*, Oct. 5, 2009

Controlling huge electromagnetic forces that have the potential to destroy the next generation of particle accelerators is the subject of a new paper by a University of Manchester physicist.

So-called 'wake fields' occur during the process of acceleration and can cause particles to fly apart.

The particles are travelling at extremely high energies - and if they are subjected to these wake fields, they can easily destroy the accelerators.

In his paper 'Wake field Suppression in High Gradient Linacs for Lepton Linear Colliders', accelerator physicist Professor Roger Jones examines research into the suppression of these wake fields.

[Read more](#)

Announcements

Latest Announcements

[Discount movie tickets available](#)

[Claim your bikes outside Wilson Hall](#)

[Discounted Fright Fest tickets on sale Oct. 9](#)

[Scrapbooking Club open house - Oct. 12](#)

[NALWO seminar - An Introduction to Neurofeedback - Oct. 14](#)

[Fermilab Toastmaster can help you find your voice - Oct. 15](#)

[Thai Village restaurant discount](#)

[Fermilab hosts Workshop on Applications of High-Intensity Proton Accelerators - Oct. 19-21](#)

[Access 2007: Intro class - Oct. 20](#)

[Interpersonal Communication Skills class - Oct. 21](#)

[Buttered Rum performs at Fermilab Arts Series - Oct. 24](#)

[Director's Award nominations accepted until Oct. 26](#)

[Conflict Management and Negotiation Skills - Oct. 28, Nov. 11](#)

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

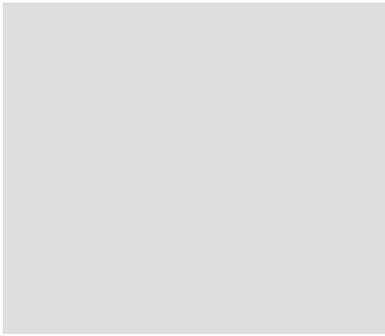
[Fred Garbo Inflatable Theatre at Fermilab Arts Series - Nov. 7](#)

[Process Piping \(ASME B31.3\) class offered in October and November](#)

["The Night Before Christmas Carol" at Fermilab Arts Series - Dec. 5](#)

[Scottish Country Dancing Tuesday evenings at Kuhn Village Barn](#)

[Weight Watchers at Work coming soon](#)



[Annual Enrollment now running](#)

[Mentors wanted for Diversity Office's FermiLINK program](#)

[Additional Activities](#)

[Submit an announcement](#)