

Calendar

Thursday, February 2

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

Speaker: P. Fox, Lawrence Berkeley National Laboratory

Title: Naturalness and Higgs Decays in the MSSM with a Singlet: Searching for a Stealthy Higgs

3:30 p.m.

Director's Coffee Break - 2nd Flr X-Over

4:00 p.m.

Accelerator Physics and Technology Seminar - 1 West

Speaker: R. Webber, Fermilab

Title: Current Proton Driver Activities in the Accelerator Division

Friday, February 3

3:30 p.m. Director's Coffee Break - 2nd Flr X-Over

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

Speaker: S. Mishra, Fermilab

Title: ILC R&D at Fermilab

Weather



Light Rain 49°/31°

[Extended Forecast](#)

[Weather at Fermilab](#)

Current Security Status

[Secou Level 3](#)

Wilson Hall Cafe

Renowned Lyric Opera Stars Perform Wednesday, Feb. 8



Basso-Baritone Andrea Silvestrelli has performed at the most important opera houses in the world, including Teatro alla Scala in Milan, the Sydney Opera House and the Lyric Opera of Chicago. ([Click on image for larger version.](#))

The Cultural Association of Italians at Fermilab, along with the Instituto Italiano di Cultura di Chicago is proud to present one of the stars of Lyric Opera, Basso-Baritone Andrea Silvestrelli, along with Soprano Teresa Cullen, and accompanied by Eric Weimer on piano. The recital, which includes works by Mahler, Ravel, Tosti, and others, will take place in Ramsey Auditorium on Wednesday, Feb. 8, beginning at 8 p. m.

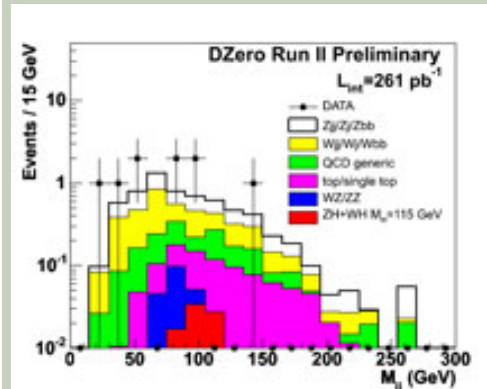
Silvestrelli, an internationally celebrated bass-baritone, made his debut in 1989 at Jesi (Ancona) in Macbeth and soon thereafter appeared in Don Giovanni at the Teatro Comunale, Bologna, and the Teatro dell'Opera, Rome. Since then, he has sung at the most important opera houses in the



Teresa Cullen

Fermilab Result of the Week

Neutrinos and the Light Higgs Boson at DZero



The mass distribution for Higgs candidate events. ([Click on images for larger version.](#))

We know how heavy the top quark and the weak force-carrying W and Z bosons are, but we don't know how they get so much heavier than a proton. The Standard Model of particle physics, which describes all current experimental results, predicts that the mass of the fundamental particles--quarks, leptons, and W, Z bosons--are given by a new particle, the Higgs boson. Although the Standard Model cannot predict the exact mass of the Higgs boson, many experimental results tell us that it should be light, probably in the mass range between 100 to 140 GeV/c², where the Tevatron has the capability of producing it.

DZero has been searching for the Higgs boson using several production channels. The search presented here looks for simultaneous production of a Higgs boson and a Z boson (the so-called associated Z-Higgs production). The Z may subsequently decay into a neutrino pair and the Higgs boson into a b-quark pair. This is one of the most

Thursday, February 2

- Santa Fe Black Bean
- Sloppy Joe
- Stuffed Peppers
- Sauteed Liver & Onions
- Baked Ham & Swiss on a Ciabatta Roll
- California Pizza
- Crispy Fried Chicken Ranch Salad

[Wilson Hall Cafe Menu](#)

Chez Leon**Thursday, February 2****Dinner**

- Clam Chowder
- Beef and Vegetable Kabobs
- Chocolate Souffle with Frangelico
- Creme Anglais

Wednesday, February 8**Lunch**

- Raspberry Chicken
- Spinach Risotto
- Mocha Cake

[Chez Leon Menu](#)

Call x4512 to make your reservation.

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world, including La Scala (Milan), the Bastille (Paris), Covent Garden (London), the Concertgebouw (Amsterdam), Sydney Opera House, and the Lyric Opera of Chicago, working with conductors such as Muti, Mehta, Abbado, Kuhn, Bychkov, and Chung. In last year's season at the Lyric Opera of Chicago, he interpreted the role of the Commendatore in Don Giovanni.

Cullen made her European debut at Teatro alla Scala (Milan) singing Marina in Luciano Berio's world premiere *Outis*. While a member of the Lyric Opera Center for American Artists, Cullen performed the title roles in *Carmen*, *L'heure Espagnole*, and *Così fan Tutte*. Main season productions included roles in *La Traviata*, *Das Rheingold*, and *Die Walküre*.

Tickets for Andrea Silvestrelli & Teresa Cullen in *Recital* are \$15. For further information or telephone reservations, call 630/840-ARTS (2787) weekdays between 9 a.m. and 4 p.m.

Science Grid This Week**From Pakistan to Pasadena**

Atif Mehmood and Adeel Zafar. (Image Courtesy Michael Thomas.)

sensitive decay channels for the Higgs boson search at Tevatron if the mass is smaller than about $140 \text{ GeV}/c^2$. The neutrinos pass undetected through the DZero detector and the resulting "missing energy" can signal the presence of associated Z-Higgs production. The b-quarks are detected as jets of particles with a "secondary vertex" well away from the primary proton-antiproton collision point. The graphic above shows the mass of the b-quark jets for events with large missing energy. A Higgs boson would show up as a bump in the data, which is not seen. Using this information we can set a limit on the production of the Higgs at the Tevatron. The limit is consistent with the Standard Model.

As the Tevatron continues to deliver luminosity, and if nature is friendly to us, we may well uncover the Higgs.



Above: Makoto Tomoto of Fermilab has worked on this analysis.

Below: Jim Fagan, Bryan Johnson, Chris Tolian, Bob Kubinsky, Rolando Flores and Mike Sarychev are members of the mechanical operations team at Dzero.



Result of the Week Archive

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Over the past 18 months, five students from the National University of Sciences and Technology in Pakistan have traveled to Caltech to develop their grid computing skills. The students, who have already collaborated remotely with Caltech scientists for at least one year, spend six months in California developing grid software and services.

"It's a fantastic learning experience," says Adeel Zafar, one of two NUST students currently visiting Caltech. Zafar and Atif Mehmood, both research assistants preparing to apply to graduate school, started working on grids at NUST in early 2004. They deployed a grid node for the CMS particle physics experiment, then moved to developing Web services for the Grid Analysis Environment.

[Read More](#)

In the News

**From *White House Press Briefing*, February 1, 2006:
Press Briefing by Administration Officials on American Competitiveness Initiative**

Remarks by Secretary of Energy

Samuel Bodman: "You already heard about ...the importance of last night's remarks by the President. I would like to take this opportunity to discuss the role that the Department of Energy will play in this competitiveness initiative.

"To maintain our country's competitive edge we simply have to generate not just new technologies, but transformational technologies -- technologies that change the very nature of products. And that -- it's that act that will continue to provide for the dominance of our economic activities, for our science and for our

Accelerator Update

January 30 - February 1

- One low luminosity store provided 30 hours and 9 minutes of luminosity.
- TeV sector C3 Wet Engine work.
- Tevatron Electron Lens trips.
- Pbar Lithium Lens problems.

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

Announcements

Women and Heart Disease

Wellness Works presents Women and Heart Disease Brown Bag Seminar February 8 at noon in WH1 West. The seminar will be presented by Dr. Santosh Gill, MD, Medical Director for the Women's Heart Center and Cardiology at Rush-Copley Medical Center. Join us to increase your awareness of the risks and effects of Heart Disease, the number one killer of American women. The first 25 women at the seminar will receive the Red Dress Pin, which is the national symbol for women and heart disease. Note: The National Heart, Lung, and Blood Institute is also promoting awareness by asking women to wear red on February 3.

English Country Dancing

English country dancing will continue at Fermilab's Barn, meeting the last Sunday afternoon of the month for February, March and April. The next session will be at 2 p.m., Sunday, February 26. Info at 630-584-0825 or 630-840-8194 or folkdance@fnal.gov

All Hands Webcast

If you missed last Friday's all hands meeting, you can catch up at the [Visual Media Service Website](#).

technologists. Out of that will come the development of alternative sources of energy that, in fact, will lead to the decrease of our dependence on foreign sources of energy. And that is why the President has committed himself to doubling the federal spending in the combined offices of the National Science Foundation, the NIST activity in the Department of Commerce that you just heard about, and the Office of Science in the Department of Energy. That doubling will occur over the next 10 years. ..."

[Read More](#)

Weight Watchers

The Weight Watchers open house meeting was held on January 31. In order to hold regular meetings at Fermilab they need nine additional members. Anyone interested in joining may contact Weight Watchers representative Sheila Vanbockern at VanbockernS@weight-watchers.

[Upcoming Activities](#)