

## Calendar

### Wednesday, November 30

**11:00 a.m.** Fermilab ILC R&D Meeting - Curia II (note location)

Speaker: V. Kuchler, Fermilab

Title: ILC Conventional Facilities Upgrade

**2:30 p.m.** Special Seminar - Curia II

Speaker: W. Guryin, Brookhaven National Laboratory

Title: Results from the PP2PP

Experiment at RHIC and Future Plans

**3:30 p.m.** Director's Coffee Break -

2nd Flr X-Over

**4:00 p.m.** Fermilab Colloquium - 1 West

Speaker: G. Bernstein, University of Pennsylvania

Title: Seeing the Invisible Universe with Gravitational Lensing and SNAP

### Thursday, December 1

**11:00 a.m.** Academic Lecture Series - Curia II

Speaker: P. Langacker, Fermilab/ University of Pennsylvania

Title: Tests of the Electroweak Theory - Lecture 2

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

Speaker: A. Freitas, Zurich University

Title: Exploring the Nature of Matter at Future Colliders

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

**4:00 p.m.** Accelerator Physics and Technology Seminar - 1 West

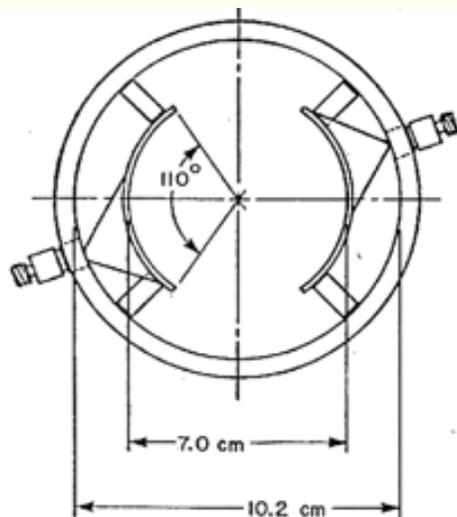
Speaker: G. Coutrakon, Loma Linda University Medical Center

Title: Proton Therapy

## Weather

## Crash Course in Luminosity, Key to Discovery at Fermilab

*This is the seventh story in a [series](#) that explains what luminosity is, and why we've recently gotten better at producing it at the Tevatron.*



Cross sectional view of the stripline position detector. (Click image for larger version.)

## Updating the "prescription" of Tevatron beam position monitors

The glasses of the Tevatron were dirty, broken and scratched with a prescription more than 20 years out-of-date. Last spring, a group of much-needed optometrists came in the form of engineers, computer professionals and technicians within the Accelerator and Computing Divisions who upgraded the electronics and software for the 240 beam position monitors (BPMs) placed within the Tevatron ring. The result is a view of the Tevatron's inner workings clearer than ever before. As stores of tightly packed protons and antiprotons travel through the beam pipe, BPMs measure their locations. The secret to higher luminosity is guiding the particles

## Hargis, O'Dette Bring Christmas Music to Stage



*'Tis Christmas Now*, an assortment of holiday music from the 16th and 17th centuries played by soprano Ellen Hargis and lutenist Paul O'Dette, is coming to Fermilab at 8 p.m. on Saturday, December 10 in Ramsey Auditorium.

Hargis specializes in 17th- and 18th-century music, including ballads, opera and oratorio. She appears regularly with The King's Noyse and in recital with O'Dette. She also has performed with The Saint Paul Chamber Orchestra, the Portland Baroque Orchestra, the Seattle Baroque Orchestra and the Freiburg Baroque Orchestra.

O'Dette is the artistic director of the Boston Early Music Festival, and has more than 100 recordings of virtuoso music for the lute. He has served as conductor for Tafelmusik and is chair of the Early Music Department at the Eastman School of Music. Admission is \$18 and \$9 for those ages 18 and under. For more information, call 630-840-2787 or visit [the Website](#).

## Announcements

Flurries Possible **35°/27°**[Extended Forecast](#)[Weather at Fermilab](#)**Current Security Status**[Secon Level 3](#)**Wilson Hall Cafe****Wednesday, November 30**

- Portabello Harvest Grain
- Santa Fe Chicken Quesadilla
- Garlic Herb Roasted Pork
- Beef Stroganoff
- Triple Decker Club
- Meatlover's Pizza
- Pesto Shrimp Linguini with Leeks and Tomatoes

The Wilson Hall Cafe accepts Visa, Master Card, Discover and American Express at Cash Register #1.

[Wilson Hall Cafe Menu](#)**Chez Leon****Wednesday, November 30****Lunch**

-Closed

**Thursday, December 1****Dinner**

- Steamed Mussels with Garlic, Thyme & White Wine
- Pork Tenderloin with Madeira Cream Sauce
- Risotto with Wild Mushrooms
- Vegetable of the Season
- Pear and Hazelnut Souffle

[Chez Leon Menu](#)

Call x4512 to make your reservation.

on well-controlled helices (See Fermilab Today, [November 23, 2005](#)) in an aperture less than 3 inches in diameter. The recent BPM improvements will help scientists do that.

The original BPM system was installed when the Tevatron was constructed in the early 1980s. "There was nothing intrinsically wrong with the system that was there," said Steve Wolbers, BPM project manager for the Computing Division. "The issue, though, is that 20-year-old electronics are probably not ideal in any situation." The electronics were replaced with modern signal-processing equipment, abandoned Main Ring BPM cables were reused for Tevatron antiproton signals and computer equipment was updated. The result is a more reliable and accurate system. "The glasses don't fall off your face every three hours, and you say, 'Oh, wow, this prescription works a lot better than the one I got 20 years ago,'" said Bob Webber, Head of the Instrumentation Department in the Accelerator Division.

The upgrades have resulted in a number of benefits to Tevatron operation. Before the new system was in place, beam position information was collected by running proton-only stores that provided no luminosity for the experiments. The new BPM system can provide accurate beam position information during normal collider operation, thus maximizing time for the experiments to collect data. The new system also is capable of measuring the positions of antiprotons, something not achievable in the past.

[Read More](#)

—Kendra Snyder

**Einstein Conference at Francis Parker School this Weekend**

[Celebrating Einstein and Science: Past, Present and Future](#), with Keynote address by Leon Lederman on Friday, December 2 at 6:30 p.m. and talks by Fermilab physicists on Saturday, December 3 starting at 11:00 a.m. This event is free and open to the public.

**Book Fair Today**

Today is the last day of the annual Holiday Book Fair. The Fermilab Recreation office is sponsoring the Fair, which will be in the Atrium today, November 30, from 7:00 a.m. until 3:00 p.m. The Book Fair accepts cash, check, MasterCard, Visa, American Express, and Discover card. A portion of the proceeds from the Book Fair subsidizes some of our Recreation Programs.

**Inclement Weather Snow Removal**

While Wilson Hall has a snow melt system for the front center plaza, portions of the front sidewalk, and stairs to the east and west parking lots, the snow melt system does not cover all front areas of the plaza or all sidewalks. For this reason, residents will see barricades and ropes to section off the areas not on the snow melt system. During periods of heavy snow and sub zero temperatures beyond the design criteria of the snow melt system, additional barricades will be placed in the front plaza area until snow removal crews can respond. As in previous winters, sections of North Eola Road and West Wilson Road may be closed during extreme winter conditions.

**Unix Users Meeting**

A Unix Users Meeting about Linux updates, tricks and tips will be held today, November 30, from 1:00 to 2:30 p.

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**Info**

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

Send comments and suggestions to [today@fnal.gov](mailto:today@fnal.gov)

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**In the News****From *KEK Topics*,  
November 29, 2005:****Belle has integrated 500 inverse femtobarns**

At 3:55 pm on November 22, Belle accumulated 500 inverse femtobarns (fb<sup>-1</sup>) of electron-positron collision data. This is a landmark in integrated luminosity for the KEKB accelerator and the Belle experiment, which started operation in 1999.

Integrated luminosity is a measure of the number of particle collisions. The record is equivalent to achieving 5 times 10 to the 41st crossings of electrons and positrons per square centimeter. More than 500 million pairs of B- and anti B-mesons were generated in the collisions.

The original goal of KEKB was to achieve 100 inverse femtobarns in 3 years. 500 inverse femtobarns in 6 and a half years far surpasses the original goal. The KEKB group now plans to achieve yet higher goals with various types of upgrades to the machine.

[Read More](#)

m. in Curia II.

**Late Show with Lederman**

Tomorrow, December 1, Fermilab Visual Media Services will tape the "Late Show with Leon Lederman" in Ramsey Auditorium. Hosted by former Fermilab director Lederman, the show will feature fun physics demonstrations, interviews with young physicists and live music. About 200 high school students will attend the show. Seating for Fermilab employees and users is available in the back half of the auditorium on a first come, first serve basis. All attendees must be seated in the auditorium by 1:45 p.m. The show will run until 3:30 p.m. No laptops will be allowed.

**Give the Gift of Good Health**

Surprise someone with the gift of good health. Gift Certificates are available for a Recreation Membership for your spouse, adult dependent, or co-worker. The Recreation Facility is open twenty-four hours a day, every day. The price for a membership is \$45 for graduate students and each of their qualified family members and \$75 for a regular membership and each of their qualified family members. Go [online](#) for more information and pictures of the facility.

**Entertainment Books are On Sale**

Entertainment Books are on sale now in the Recreation Office. You can view the [offerings](#) in books online before you order.

**[Upcoming Activities](#)**