

Calendar

Thursday, October 6

12:00 p.m. Wellness Works Brown Bag Seminar - 1 West

Speakers: Presented by Citibank and Local Law Enforcement

Title: Identity Theft

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

Speaker: M.-C. Chen, Fermilab

Title: Fermion Masses, Neutrino Oscillations and SUSY Grand Unification

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

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

Speaker: E. Prebys, Fermilab

Title: MiniBooNE and NuMI: Why Do They Need So Many Protons?

Friday, October 7

2:30 Particle Astrophysics Seminar (NOTE DATE) - Curia II

Speaker: E. Kolb, Fermilab

Title: Acceleration Without Dark Energy

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

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

Speaker: M. Wascko, Louisiana State University

Title: Charged Current Single + Production at MiniBooNE

Weather



Sunny 62°/38°

[Extended Forecast](#)

[Weather at Fermilab](#)

Resident Buffalo Given Annual Medical Exams



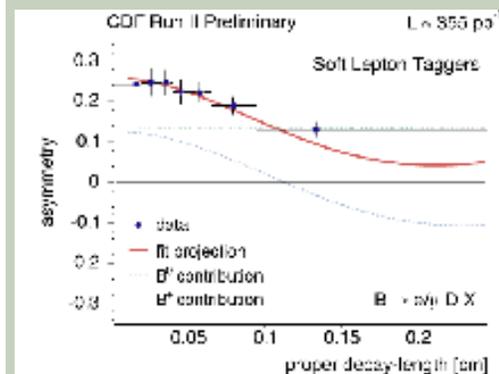
Mike Becker gets the Buffalo ready for their shots. (Click on image for larger version.)

The Roads & Ground crew gave a series of speedy medical exams on Tuesday to 50 kicking and bucking patients-- Fermilab's resident buffalo. In a process resembling a NASCAR pit stop, the buffalo (technically called American bison) were steered one by one through a series of gates to a screeching halt at the "squeeze chute," a metal chamber whose manually compressed walls hold the animal still.

The cantankerous buffalo can weigh up to 2000 pounds. While staged, they were injected with medications to prevent kidney and liver problems, diarrhea and parainfluenza, and given a dose of vitamins A, D and E. A squirt of deworming medication was spread on their backs, ear tags were cleaned or replaced and blood samples were taken to test for tuberculosis and other diseases. Some buffalo battled against the treatment, clanging their horns and heads against the metal bars. Others stayed still while huffing loudly through their nostrils. The front gate was lifted less than two minutes into each checkup and the freed buffalo dashed out of the

Fermilab Result of the Week

Getting Ready for Take 2: B^0_s Mixing at CDF



This plot indicates the oscillation of the B^0 meson in "semileptonic" B events. Shown is the data (points), along with the expectations from B^+ (dot-dash) which is flat because it does not mix, the B^0 (dash) which oscillates, and the total expectation (solid red). (Click on image for larger version.)

CDF is making breakthrough strides in measuring special types of particles, neutral B mesons, which can spontaneously convert into their own antiparticles. This conversion process is periodic and is referred to as "flavor oscillations." The B mesons are bound states of a b quark and another type of quark, and include the B^0_s (anti- b quark plus s quark, pronounced "Bee sub s"), and the B^0_d (anti- b plus d , "Bee sub d"). So far nobody has directly seen B^0_s mesons oscillate and only lower limits on the mixing frequency have been derived. The observation of these rapid oscillations is one of the flagship analyses at the Tevatron which is presently the only place where B^0_s mesons are created in sufficiently large numbers. In March 2005, the CDF collaboration put out its first analysis based on Run II data in which a lower limit on the mixing

Current Security Status

[Secou Level 3](#)

Wilson Hall Cafe

Thursday, October 6

- Southwestern Chicken Tortilla
- Philly Style Cheese Steak
- Chicken Pot Pie
- Tomato Basil Chicken Parmesan
- Southwestern Turkey Wrap
- 4 Cheese Pizza
- Marinated Grilled Chicken Caesar Salads

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

[Wilson Hall Cafe Menu](#)

Chez Leon

Thursday, October 6

Dinner

- Curried Squash
- Grilled Duck with Red Wine and Fig Sauce
- Wild Rice with Raisins
- Almond Orange and Olive Oil Cake

Wednesday, October 5

Lunch

- Catfish w/Roasted Peppers
- Lemon Grass Rice
- Vegetable of the Season
- Ginger Plum Turnovers

[Chez Leon Menu](#)

Call x4512 to make your reservation.

Search

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Info

holding chute.

The hard part is tricking the buffalo into entering the staging system, said Mike Becker, head of Roads & Grounds. The buffalo food bunks were moved from the adjacent feeding grounds to the corral three weeks before the round-up. During Tuesday morning's feeding time, two stealth employees swung the gates shut as soon as all the animals were inside eating.

Although the round-up can be dangerous, Becker said this year's procedure went smoothly. "Everybody's got so much experience," he said. "You put people in places where they're comfortable and in something they've done before and rely on that experience." Later this month, half of the herd, 23 calves and two adults, will be sold at the annual auction, Becker said. They were separated from the rest of the herd after their checkups.

—Kendra Snyder

Science Grid This Week

Science, Art, Advanced Networks Meet at iGrid 2005



Participants in the world's highest-resolution videoconference. *Image Courtesy Osamu Ishida, NTT.*

Advanced optical networks and light path technology were on display at iGrid 2005, held September 26–30 at the new Calit2

frequency has been derived (see [link](#)).

To decide whether a B meson has oscillated the flavors of the B meson at its creation and decay time have to be determined. The decay flavor can be reconstructed from the particles measured in the detector. The production flavor is determined with "flavor tagging" algorithms. These algorithms are usually quite complex and are calibrated with B^+ mesons (anti- b plus u , "Bee plus"), which cannot mix, and B^0_d mesons, which have a mixing frequency of at least 40 times lower than B^0_s mesons and have been studied in detail at the B factories.

A group of physicists at CDF, partly shown in the photo, has just finished this important calibration step, performing a B^0_d mixing measurement. Since the March 2005 calibration, CDF has improved the analysis on various fronts to squeeze more information out of the data. The improvements are in the flavor tagging algorithms, and the additions of new decay channels of the B^+ and B^0_d mesons. The improvement of the flavor taggers has increased the effective statistics of the data by 40 percent. The measured B^0_d mixing frequencies are in good agreement with the world average.

Further major improvements for the B^0_s mixing analysis are under way; stay tuned for CDF's next B^0_s mixing result which is expected to appear soon.

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building on the campus of the University of California, San Diego. The workshop showcased more than four dozen demonstrations of applications using high-speed optical networks, and also included a symposium with lectures, panel discussions and master classes on applications, middleware and underlying cyberinfrastructure for 10 gigabit optical networks.

"We only organize an iGrid when there's a new level of technology available," said Tom DeFanti, iGrid 2005 co-chair. "This workshop was organized because of the global availability of light paths. The goal of iGrid 2005 was to build a team that knows and trusts each other, and that knows how to control and request light paths for applications and users."

[Read More](#)

In the News

From *The Seattle Times* October 5, 2005:

2 Americans, German share physics Nobel

Two Americans and a German were awarded the 2005 Nobel Prize in physics yesterday for theoretical research explaining how lasers work and for practical developments using lasers to explore the fine structures of atoms.

Roy Glauber of Harvard University will receive half the \$1.3 million prize for applying quantum theory to the light emitted by lasers, a feat that reconciled the dual nature of light, which can behave like both a particle and a wave.

"You don't need Glauber's theory to



From left to right: Alberto Belloni (MIT), Vivek Tiwari (CMU), Ilya Kravchenko (MIT), Jeff Miles (MIT), Guillermo Gomez-Ceballos (Cantabria U.), Stephie Menzemer (MIT); top right: Christoph Paus (MIT), bottom right: Sandro De Cecco (Rome U.).

[Result of the Week Archive](#)

Accelerator Update

October 3 - 5

-During this 48 hour period, two stores provided 37 hours and 52 minutes of luminosity.

-Store 4431 sets New World Hadron Luminosity Record: 141.28E30

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

Announcements

Fermilab Folk Club Barn Dance Sunday

October 9 at 6:30 p.m. with music by the thisbigstringband and calling by Dot Kent.

[More Information](#)

Women's Organization Luncheon

There will be plenty of food and lively conversation at the [NALWO](#) Annual Autumn Luncheon Monday, October 17.

Volunteer for Girl Scout Projects

On November 12, from 9 a.m. to 3 p.m., there will be a Fermilab Girl Scout Badge workshop on site. Volunteers are needed to help with cemetery and village history

invent the laser, but you do need it to understand its properties," said physicist Daniel Kleppner of the Massachusetts Institute of Technology.

[Read More](#)

projects, the prairie harvest, Ask A Scientist/Engineer-type activities and various other things during this event. Anyone and everyone is welcome to help out! If you have any questions or wish to volunteer contact Anne at

Lucietto@fnal.gov.

[Upcoming Activities](#)