

Calendar

Thursday, September 2

11:00 a.m. Special Seminar - Curia II

Speaker: Y. Enari, Nagoya University

Title: Search for New Physics in Lepton Flavor Violating Tau Decays at Belle

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

Speaker: A. Lenz, University of Regensburg

Title: On the SU(3) Symmetry-Breaking Corrections to Meson Distribution Amplitudes

3:30 p.m. DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

Friday, September 3

8:00 a.m.- 10:00 a.m. Special

Videostream Session from Durham ECFA Linear Collider Workshop - Hornets' Nest - WH-8X0

Speakers: H. Weerts, Michigan State University/Fermilab, S. Yamashita, University of Tokyo, T. Behnke, DESY

Title: Worldwide Detector Concept Studies for Linear Collider

3:30 p.m. DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

THERE WILL BE NO JOINT EXPERIMENTAL THEORETICAL PHYSICS SEMINAR THIS WEEK

Wilson Hall Cafe

Photographer Lindy Smith Visits Fermilab



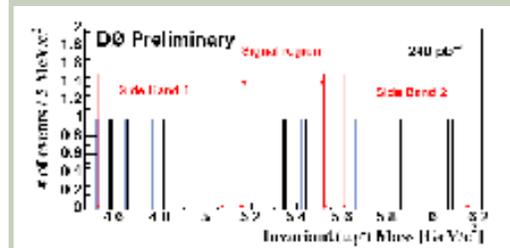
Lindy Smith at Fermilab arranging prairie plants on paper that has a special chemical sensitizer painted onto it. (Click on image for larger version.)

Photographer Lindy Smith spent a week at Fermilab last month, photographing prairie plants with an extremely unique method -- no camera. Smith, who published *Straight West*, a photography book about the American West, uses an historical process that combines painting, chemistry, ecology, and of course, photography. This nineteenth century technique involves handcoating paper with a chemical sensitizer. Smith arranges the prairie plants on the paper after it is dry and exposes the print outside in the sun for 30 to 60 minutes. The prints then go through the regular photographic process, setting the image on the paper. "I started by using the weeds in my garden," Smith said. "I realized that I was more interested in the weeds rather than the plants I was growing."

Smith, who is originally from Iowa but now lives in upstate New York, usually works with smaller woodland plants such as ferns. "I am printing much bigger out here

Fermilab Result of the Week

Rare and Beautiful Decays



Invariant mass of the $\mu^+ \mu^-$ pairs of the remaining background in data that satisfy requirements on discriminating variables. (Click on image for larger version.)

The observation of a B_s meson decaying in to a muon and anti-muon, and nothing else, offers a powerful window into possible physics scenarios not described by the current Standard Model.

A B_s particle consists of an anti-beauty quark and a strange quark. These cannot combine directly to form a muon and anti-muon. Our Standard Model, however, predicts that it is still possible to have such a decay, but only through a more involved web of intermediate particles. All this occurs in such a short time that Heisenberg's Uncertainty Principle allows the intermediate particles to be more massive than either the B_s or muons. These additional steps involving heavy particles lead to this particular decay being very rare. The Standard Model predicts that roughly only one out of 300 million B_s particles will decay this way! If other new massive particles due to new physics not described by the Standard Model exist, then they can possibly participate in these intermediate steps and dramatically increase the probability that the B_s can decay into a muon and anti-muon.

Thursday, September 2

Tomato Florentine soup
Grilled Chicken Cordon Bleu Sandwich
\$4.75
Chimichangas \$3.75
Chicken Marsala \$3.75
Maryland Crab Salad \$4.75
Italian Sausage Calzones \$2.75
SW Chicken Salad with Roasted Corn
Salsa \$4.75

[Wilson Hall Cafe Menu](#)

[Chez Leon](#)

Weather



Mostly Sunny **84°/62°**

[Extended Forecast](#)

[Weather at Fermilab](#)

Current Security Status

[Secou Level 3](#)

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because everything is so much taller," she said. "Plants are very stiff and thick in the prairie, so I have been spending a lot of time here just trying to figure out how to arrange things on the paper." Smith worked closely with Roads & Grounds, FESS' Rod Walton and Prairie Restoration Project founder Bob Betz during her visit, catching a pretty good case of prairie fever. "The whole process is quite evolutionary because the photograph changes as it goes through each step," she said. "A lot of people actually don't realize that they are photographs because they look so much like paintings."

In the News

FYI: AIP Bulletin of Science Policy News, August 31, 2004

House Rejects Rep. Holt Amendment to Establish OTA-Capability

During last month's consideration of the FY 2005 Legislative Branch Appropriations Bill, Rep. Rush Holt (D-NJ) was unsuccessful in his attempt to increase the scientific analytical staff available to Members of Congress. Holt's amendment, designed to replace some of the capabilities that were lost when the Office of Technology Assessment was closed in 1995, was defeated by a vote of 115-252.

The Office of Technology Assessment (OTA) was one of the few in-house analytical agencies available to Members of Congress. (Other units are the Library of Congress's Congressional Research Service, the General



After combing through data taken through April 2004 with the DZero detector, four candidates were observed as shown below, while 3.7 ± 1.1 candidates were predicted to come from background, i.e., random muons that when combined accidentally appear to come from B_s decays. From this observation, we know that fewer than 1 in roughly 2.2 million B_s particles decay into a pair of muons. Although this is still not yet at the sensitivity to observe the tiny rate predicted by the Standard Model, it still rules out many theoretical models predicting particles that would result in a rate larger than what we see in our data.



Angela Bellavance (left) (University of Nebraska) worked on the Level 3 trigger and Dennis Shpakov (Northeastern University) worked on the readout used for this, and other, analyses.



Ralf Bernhard (right) and Frank Lehner of FNAL, visiting from the University of Zurich, worked on the analysis searching for these rare decays.

[Result of the Week Archive](#)

Announcements

Accountability Office, and the Congressional Budget Office.) OTA produced high-quality reports on a wide range of technology-related issues that were marked by their evenhandedness, depth, and high quality. After Republicans took control of both the House and Senate in 1995, they sought to reduce what they deemed unnecessary spending, and began by looking at their own operations. Following considerable debate in both chambers, the Office of Technology Assessment was defunded.

[read more](#)

From *Space.com*, August 31, 2004

Getting a Grip on Antimatter

Research into what separates matter from antimatter is accelerating in particle physics experiments around the world. Scientists are hoping the difference will help explain why you, me and all the things around us are made of matter instead of its opposite.

Shortly after the Big Bang theoretically kicked off everything, the universe was a hot soup of equal parts matter and antimatter, scientists say. Why the former came to dominate is a question that physicists have yet to answer fully.

Recent results from the BaBar experiment in California have confirmed one departure between the two substances, but to solve the puzzle more deviations will have to be found.

"This was a very important step on the road to understanding the matter-antimatter asymmetry," said David MacFarlane, a physicist with the BaBar group. "This asymmetry is one of the fundamental questions of cosmology."

Weekly Time Sheets

With the upcoming Labor Day Holiday on Monday, September 6, Weekly Time Sheets are due in Payroll by 10:00 a.m. on Friday, September 3, 2004.

Streaming Video of ECFA Workshop Available Tomorrow

A plenary session from the ECFA Workshop on Physics and Detector Studies for Linear Collider in Durham, UK will be broadcast on streaming video tomorrow from 8:00 a.m. to 10:00 a.m. in the Hornet's Nest on the 8th floor of Wilson Hall. The agenda for the plenary session follows:

8:00 a.m. The Case for a Silicon Tracking Detector Concept - Harry Weerts

8:30 a.m. The Case for a Huge Gaseous Tracking Detector Concept - Satoru Yamashita

9:00 a.m. - The Case for a Medium Gaseous Tracking Detector Concept - Ties Behnke

9:00 a.m. - Discussion on Technical and Strategic Questions - all

[Complete Agenda](#)

[Streaming Video Information](#)

UEC Career Night

The Fermilab UEC will be hosting a Career Night on Thursday, September 9 from 7:00 p.m. to 9:00 p.m. in One West. The talks are aimed at graduate students and young physicists, but everybody is welcome. Wine and cheese will be served from 6:00 p.m. to 7:00 p.m. For more information, contact a member of the Organizing Committee: Ken Bloom, Sharon Hagopian, Lydia Lobo, or Paul Sheldon.

Downtime Scheduled for IMAPServer2

On September 4 and 5, IMAPServer2 will

[read more](#)

be upgraded. The upgrade will take approximately 12-14 hours. The work will start at 10:00 p.m. on September 4, and it should be completed by noon on September 5.

Wilson Hall Power Outages

- Power will be out September 13 for half an hour starting at approximately 7:00 a.m.

- Power will be out September 24 for half an hour starting at approximately 7:00 a.m.

For more information, contact Wilson Hall Building Manager Stan Boyson at x4753.