Fermilab Today

Thursday, June 30, 2005

Calendar

Thursday, June 30
2:30 p.m. Theoretical Physics Seminar - Curia II
Speaker: S. Pascoli, CERN
Title: Determining the Neutrino Mass Hierarchy
3:30 p.m. DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

Friday, July 1
3:30 p.m. DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
4:00 p.m. Joint Experimental Theoretical Physics Seminar - 1 West
Speaker: R. Johnson, Muons, Inc.
Title: Recent Innovations in Muon Beam Cooling and Prospects for Muon Colliders at Fermilab

Weather

Chance Thunderstorms 92º/61º

Extended Forecast

Weather at Fermilab

Current Security Status

Secon Level 3

Wilson Hall Cafe

Experimenters, Theorists Make Tevatron Connection

CDF and DZero experimenters came together with theorists on Friday, June 24 and Saturday, June 25 for the Tevatron Connection, a series of presentations and discussions about current physics at the Tevatron. The two-day workshop was divided into sections devoted to B physics, QCD, physics beyond the Standard Model, top quark and electroweak interactions, and the future of particle physics at the ILC and the Tevatron. Each of these topics was addressed by a theorist and scientists from CDF and DZero, and audience questions were encouraged after every presentation, further opening up discussion between the theorists and experimenters.

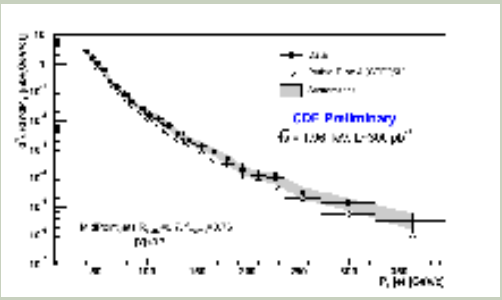
Experimentalist Hal Evans delivered a lecture on the current state of B physics at DZero.

"The conference is helpful in bringing CDF and DZero together, and promotes healthy competition between the two," said Marcela Carena, a Fermilab theorist and organizing committee member. "It also opens up a good dialogue with theorists, and we learn how to exploit the results from the Tevatron in the best possible way."

The Tevatron Connection was founded in 2004, and is the only time during the year when DZero and CDF experimenters

Fermilab Result of the Week

The Beauty of Jets



The inclusive b-jet cross section is compared with the prediction from Pythia Monte Carlo. The results are in agreement with expectation. (Click on image for larger version.)

Measurements of the rate (or cross section) of b-quark jet production at hadron colliders provide an important quantitative test of Quantum Chromodynamics (QCD), one of the underlying theories of the Standard Model. Such jets are clusters of particles from high energy b-quark decays all moving in approximately the same direction. Past Tevatron measurements of b quark production indicated an "excess" with respect to QCD predictions. This observation induced a lot of interest and led to many developments in both the theoretical calculations and the interpretation of experimental results, culminating in a 2004 CDF measurement which demonstrated good agreement of b production at low energies.

A new CDF analysis considerably extends the upper reach of b quark production measurements, thus allowing us to explore the behaviour at higher transverse momentum. The analysis team considers jets in the central region of the detector with an energy reach of up to 400 GeV, compared with previous results

Thursday, June 30
Minnesota Wild Rice Soup
Tuna Melt on Nine Grain $4.85
BBQ Ribs $3.75
Chicken Casserole $3.75
Buffalo Chicken Wrap $4.85
Cheesey Breadsticks $2.50
Chicken Pecan Salad $4.85

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

Wilson Hall Cafe Menu
Chez Leon is now open. Call x4512 to make your reservation.

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communicate on such a large scale. "There is some private communication between the experiments for specific analyses, but this conference is the only global communication between the two," University of Michigan physicist and organizing committee member Jianming Qian explained.

Serendipitously, on the first day of the conference, the Tevatron celebrated a new world record and important milestone for Run II: one inverse femtobarn of integrated luminosity. The timely achievement prompted more discussion of accelerator physics at the Tevatron Connection and increased optimism about the future of particle physics, a topic that many presenters addressed.

"Overall, the tone and atmosphere at the Tevatron Connection was very positive," Carena said. "Next year, we expect to widen the participation since it really was first-rate."
--Elizabeth Wade

Fermilab users enjoyed Indian cuisine outside the Village Barn at the Tevatron Connection Party on June 24. (Click on image for larger version.)

In the News

of up to 100 GeV, and the cross section extends over six orders of magnitude. The long lifetime of the massive b quark means the decay products are displaced from the collision point. Thus the precise CDF tracking detectors can reconstruct the secondary vertex, and distinguish b jets from lighter quark jets, providing a clean sample of b quark events for a precise b cross section measurement.
more information

Analysis performed by Monica D'Onofrio, University of Geneva. Supporters (not pictured): Xin Wu and Allan Clark, University of Geneva; Mary Convery, Rick Field, Mario Martinez as CDF QCD conveners, and the whole QCD group at CDF.

Result of the Week Archive

Accelerator Update

June 27 - June 29
- During this 48 hour period Operations established one store that combined with an existing store provided approximately 27 hours and 3 minutes of luminosity to the experiments
- Heat trips off MiniBooNE beam
- TeV quench

Read the Current Accelerator Update
Read the Early Bird Report
View the Tevatron Luminosity Charts

Announcements

FYI: AIP Bulletin of Science Policy News, June 29, 2005

Senate Appropriators Recommend 1.1% Increase for NSF

The Senate Appropriations Subcommittee on Commerce, Justice and Science has sent its FY 2006 funding bill, H.R. 2862, to the floor. This newly established subcommittee, chaired by Senator Richard Shelby (R-AL), with Democratic Ranking Member Barbara Mikulski (D-MD), recommends an increase in the National Science Foundation budget of 1.1%. The House bill provides an increase of 3.1%.

The following selections are from Senate Report 109-88 pertaining to physics, astronomy, major research equipment and education programs. Readers wishing to read the complete report language may do so online under "Committee Information."

Read more

Weekly Time Sheets Due Tomorrow

With the upcoming Fourth of July Holiday on Monday, Weekly Time Sheets are due in Payroll by 10:00 a.m on Friday July 1, 2005.

Housing assignments 2005/06

July 1 is the deadline for requests for onsite housing (houses, apartments, and dormitory rooms) for the Fall/Spring of 2005-2006. Requests can be made for any period and need not commence on any particular date. To make reservations, please contact the Housing Office at 630-840-3777 or housing@fnal.gov, or use the Online Housing Request form. Requests for multiple housing units are best handled by email.

"The Merry Widow" Discount Tickets

Fermilab's Recreation Office offers discount tickets for "The Merry Widow." The show runs from August 20 to August 28 in the Cahn Auditorium on the corner of Sheridan Road and Emerson, on the Northwestern University campus. Tickets must be ordered.

more information Upcoming Activities