

Calendar

Thursday, December 2

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

Speaker: I. Schienbein, Hamburg University

Title: Mass Effects in Single Inclusive Hadroproduction of Heavy Mesons

3:30 p.m. DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

Friday, December 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. D'Auria, University of Glasgow

Title: Bc: Fully Reconstructed Decays and Mass Measurement at CDF

8:00 p.m. Fermilab Film Series - Auditorium

Tickets: Adults \$4

Title: Sunset Boulevard

Saturday, December 4

8:00 p.m. Fermilab Arts Series - Auditorium

Tickets: \$20/\$10

Bailiwick Theater presents: The Christmas Schooner

Wilson Hall Cafe

"Early Bird" Back in Business



Fermilab's Main Control Room (Click on image for larger version.)

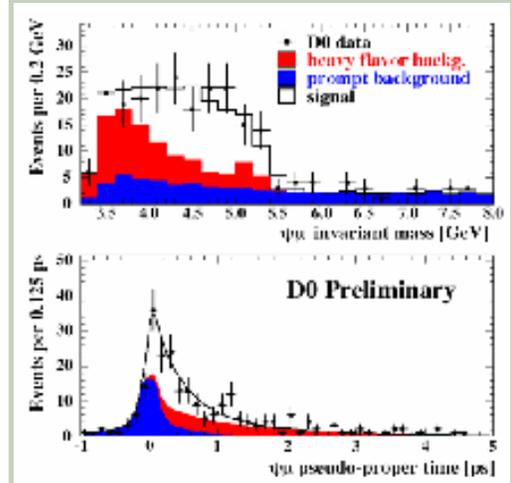
After a 13-week shutdown, the Main Control Room is humming with activity and the entire Fermilab accelerator complex is back in operation.

And so is the Early Bird report, produced five days a week by the crew chief on duty in the Main Control Room. The report summarizes the beam operation of the last 24 hours, with Monday's issue covering the entire weekend.

The reports of the past few days have nicely summarized the progress the machines have made. On Monday, in the first report after the shutdown, Duane Newhart wrote that the "Main Injector had circulating beam by 08:38" on Saturday morning, a significant milestone as the Main Injector feeds beam to the Tevatron, the Antiproton Source, the NuMI beam line and the Meson Test Beam Facility. Tuesday's report noted that the "Tevatron achieved circulating beam by 16:18" (on Monday afternoon). Both Recycler and MiniBooNE began taking beam in the evening.

Fermilab Result of the Week

Charmingly Beautiful Mesons at DZero



The $J/\psi + \mu\text{on}$ mass and lifetime distributions of the B_c to $J/\psi + \mu\text{on}$ candidates (points) in 210pb^{-1} of DZero data, with the results of the combined mass and lifetime likelihood fit overlaid. This data has been used to obtain a B_c mass of $5.95^{+0.14}_{-0.13} \pm 0.34 \text{ GeV}/c^2$ and a lifetime $(0.448^{+0.123}_{-0.096} \pm 0.121) \times 10^{-12} \text{ s}$. (Click on image for larger version.)

The B_c meson is a combination of a bottom quark (also referred to as a beauty quark) and charm antiquark. This combination is unique because it is the only meson made up of two heavy quarks with different flavor, each with its own characteristic decay time. This in turn makes the B_c a sensitive system to explore and test fundamental models of how quarks combine to form massive observable particles.

Theory predicts that at the Run II Tevatron each B_c will typically

travel only about 0.02cm or less before it decays into other particles, and we thus infer its existence only through

Thursday, December 2
Southwestern Chicken Tortilla Soup
Philly Style Cheese Steak \$4.75
Baked Fish w/ Roasted Leeks and Peppers \$3.75
Tomato Basil Chicken Parmesan \$3.75
Classic Cuban Panini \$4.75
4 Cheese Pizza \$2.75
Marinated Grilled Chicken Caesar Salads \$4.75

[Wilson Hall Cafe Menu](#)

[Chez Leon](#)

Weather



Dense Fog 34°/24°

[Extended Forecast](#)

[Weather at Fermilab](#)

Current Security Status

[Secon Level 3](#)

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Progress continued. Just in time for the Early Bird deadline on Wednesday morning, MCR operators working the owl shift "got beam (inside the Tevatron) all the way to 980 GeV."

More achievements are in the making. Most importantly, accelerator experts hope to establish colliding beam in the near future. When will it be? The [Early Bird report](#) will keep all of us informed. Highlights will be summarized by Bruce Worthel, Accelerator Division, in the [Accelerator Update](#) in *Fermilab Today*.

Accelerator Update

November 29 - December 1

The Tevatron and Recycler circulated beam on Monday.

The Tevatron suffered a quench on Tuesday.

The Tevatron ramped beam to 980 GeV on Wednesday morning.

The Antiproton Source began slowly stacking.

[Read the Current Accelerator Update](#)

[View the Tevatron Luminosity Charts](#)

In the News

From the *U.S. News Wire*, December 1, 2004

NNSA Issues Draft RFP for Los Alamos National Laboratory Contractor

WASHINGTON, Dec. 1 /U.S. Newswire/ - The National Nuclear Security Administration (NNSA) is seeking comments on a draft Request for Proposal (RFP) for the competitive selection of a management and operating (M&O) contractor for Los

the properties of its daughter particles. One of the more dominant B_c decay modes is that of a J/ψ meson plus a muon and other undetected particles. Such decays can be efficiently and cleanly reconstructed by the DZero detector, which has excellent muon identification capabilities.



Sherry Towers, a postdoctoral research associate at Stony Brook, performed the initial Dzero B_c analysis.

Earlier this year 95+-12+-11 B_c decays to the J/ψ +muon final state were identified in the initial Run II data recorded by the DZero experiment. This allowed DZero to present preliminary results on the mass and lifetime of the B_c meson at a major conference in Beijing. This is the strongest evidence to date for the existence of the B_c meson, and the precise DZero measurements of the mass and lifetime provide important insights into the nature of this interesting new particle. This will allow comparison to theory and help further our understanding of the most fundamental forces in nature.

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Alamos National Laboratory (LANL), an NNSA weapons laboratory located in Los Alamos, N.M.

NNSA seeks offerors with the capability to manage world-class science and achieve excellent operations and management performance.

[Read more](#)



The Level--two group have assembled and are operating a critical component of the DZero triggering system. Some of the team members captured at the L2 test stand are Marc Buehler (UI,Chicago), Adam Yurkewicz (Stony Brook), Sergey Uzanyan (Northern Illinois) , Reinhard Schwienhorst (Michigan State), Terrence Toole (Maryland) standing; Norm Buchanan (Florida State), Joshua Dyer (Michigan State), Isaac Hall (Oklahoma) middle row; Arthur Maciel (Northern Illinois), Miroslav Kopal (Oklahoma), and Tulika Bose (Columbia) front row. (Click on image for larger version.)

[Result of the Week Archive](#)

Announcements

Fermilab Film Series Tomorrow Night
The Fermilab Film Series presents "Sunset Boulevard" at 8:00 p.m. on Friday, December 3 in Ramsey Auditorium.

[more information](#)

Fermilab Arts Series This Weekend
The Fermilab Arts Series presents "The Christmas Schooner" at 8:00 p.m. on Saturday, December 4 in Ramsey Auditorium.

[more information](#)

Fermi Singers' Upcoming Performances

The Fermi Singers will give a Winter Concert early in 2005. They will also perform during lunch at Chez Leon on December 15 and at the Chapel at Naper Settlement on Friday, December 17 at 6:30 p.m.

[more information](#)

Symmetry Email Notification

Hard copies of the new issue of Symmetry will be distributed today. To receive an email notification with the table of contents and links to online versions of all future issues, please [sign up now](#).

Wilson Hall Super Science Stocking Stuffer Sale

The Wilson Hall Super Science Stocking Stuffer Sale will be outside One West today from 10:00 am to 1:00 pm. Fermilab apparel, coffee mugs, keychains, science kits and more.

[Upcoming Activities](#)