

Calendar

Thursday, May 20

THERE WILL BE NO THEORETICAL PHYSICS SEMINAR TODAY

11:45 a.m. Third Thursday Lunchtime

Cleanup - WH - Ground Floor, East Side

3:30 p.m. DIRECTOR'S COFFEE BREAK

- 2nd Flr X-Over

THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

Friday, May 21

1:00 p.m. Theoretical Physics Seminar -

WH-3NE - Theory Conf. Rm. (NOTE DATE, TIME, LOCATION)

Speaker: Y. Shadmi, Technion

Title: The Importance of Being Majorana: Neutrinos versus Charged Fermions in Flavor Models

3:30 p.m. DIRECTOR'S COFFEE BREAK

- 2nd Flr X-Over

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

Speaker: D. Soper, University of Oregon

Title: Diffractive Hard Scattering: What Have We Learned?

Wilson Hall Cafe

Thursday, May 20

Southwestern Chicken Tortilla

Philly Style Cheese Steak \$4.75

Baked Fish with Roasted Leeks and Peppers \$3.75

Tomato Basil Chicken Parmesan \$3.75

Classic Cuban Panini \$4.75

Cheesy Breadsticks \$1.85

Marinated Grilled Chicken Caesar Salads \$4.75

[Wilson Hall Cafe Menu](#)

[Chez Leon](#)

Glass, Elias Host RPI Alumni Group Tour

Rensselaer graduates Hank Glass ('78), of TD-Development and Test, and John Elias ('62), of PPD-CMS, hosted an April 17 lab tour for the Chicago chapter of the Rensselaer Alumni Association, escorting about two dozen fellow graduates and family members to the Lederman



Hank Glass explains superconducting magnets to the alumni group.

Science Education Center, the 15th

floor displays in Wilson Hall, and then on to CDF. Many of the guests stayed for that evening's performance of "Manya," the one-woman play about the life of Marie Curie.

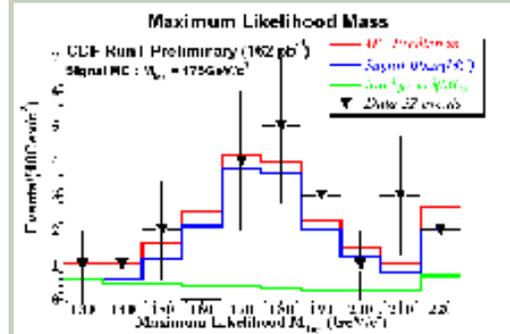
"This kind of group event was relatively easy to organize, and a lot of people were very pleased at getting a chance to see Fermilab," said Glass.

Rensselaer Polytechnic Institute, in Troy, New York is the country's oldest technological institution, founded in 1824. Rensselaer president Shirley Ann Jackson was an early postdoc in Fermilab's theory group, and is now a member of the lab's Board of Trustees.

[read more](#)

Fermilab Result of the Week

CDF Takes Three Paths to the Top Mass



The most likely top quark masses determined in each observed event by the Dynamical Likelihood Method. Points represent the data, while the red curve shows the expected shape for Standard Model signal and background. (Click on image for larger version.)

The top quark, the most massive known elementary particle, was first observed in 1994 at the Tevatron. Its mass can be used to predict that of the Higgs particle--a crucial, but still undiscovered, elementary particle in the Standard Model of Particle Physics.

Three teams at CDF have recently completed measurements of the top-quark mass using Tevatron Run II top/anti-top pair events. In the decay mode studied, one top quark decays to a charged lepton, a neutrino, and a bottom quark, while the other decays to three quarks, one of which is a bottom quark. At least one of the bottom quarks is identified by the silicon detector.

Weather



Chance Thunderstorms 84°/72°

[Extended Forecast](#)

[Weather at Fermilab](#)

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News from the Users' Executive Committee

Register for the Annual Users' Meeting Now

The Users' Executive Committee met in late April. Highlights of the meeting included a presentation of plans for a new visitor center with Kurt

Riesselmann, the status of installation and commissioning of electron cooling in the PBar Recycler with Sergei Nagaitsev and the nascent plans for a CMS Physics Center at Fermilab with Avi Yagil. The [complete minutes](#) of the meeting are available online.

The UEC is also in the final stages of planning the annual Users Meeting, which will be held June 2nd and 3rd in the Wilson Auditorium. Even though there is no fee, Users are encouraged to [register online](#). A complete schedule for the Users' meeting is also available online.



Sharon Hagopian,
Chair UEC

Accelerator Update

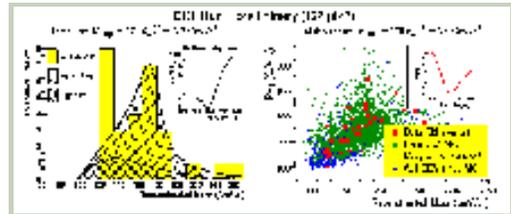
May 17 - May 19

- Operations established two stores during this period of time that provided the experiments with approximately 16 hours and 32 minutes of luminosity.
- Colliding beam problems continued to bother the TeV
- Linac had a stuck vacuum valve
- C3 cold compressor tripped off and caused TeV quench

[View the current accelerator update](#)

[View the Tevatron Luminosity Charts](#)

In the News



At left, the Template Method finds the top-quark mass (inset) that best fits the distribution of reconstructed mass from the data (histogram). At right, the Multivariate Template Method performs a similar fit in a two-dimensional space. (Click on image for larger version.)

The Dynamical Likelihood Method, originally proposed by Kunitaka Kondo in 1988, discriminates among possible top-mass values using observables of the top-quark decay products. It uses the maximum amount of information on top quarks provided by the Standard Model. Two independent methods, based on different assumptions, produce similar results. The Template Method reconstructs the invariant mass of the top quark in each event, while the Multivariate Template Method enhances this approach by adding information on quark-jet energy and event topology.

The Dynamical Likelihood Method yields a top mass:

$$M_{\text{top}} = 177.8^{+4.5}_{-5.0}(\text{stat.}) \pm 6.2(\text{syst.}) \text{ GeV}/c^2.$$

Through these measurements, CDF has established techniques that will provide precise determination of the top-quark mass as Run II continues.

From ***Nature Magazine***, May 19, 2004

Iranian physicist locked out of laboratory by energy department

by Geoff Brumfiel

His supervisor believes he will be one of the achievers of tomorrow, he has just won an award from the American Physical Society — and he has been banned from his lab for more than a year by the US Department of Energy (DOE).

Shahram Rahatlou is an Iranian high-energy physicist based at the University of California, San Diego (UCSD), whose research involves using the BaBar particle detector at the Stanford Linear Accelerator Center (SLAC). But since February last year, he has been prohibited from entering the grounds of SLAC, where he has worked for the past six years.

[read more](#)

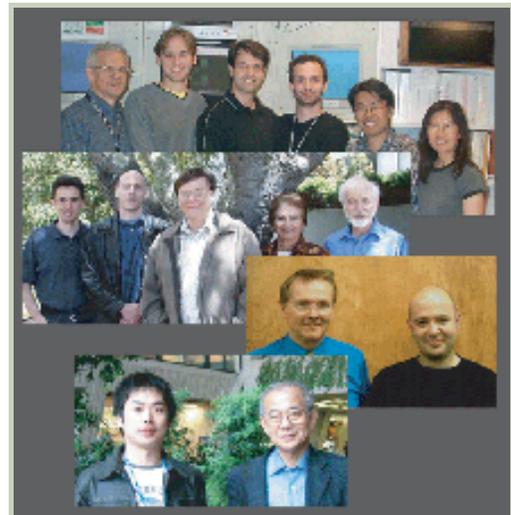
From ***Nature Magazine***, Editorial, May 19, 2004

Equal treatment under the law

If this fundamental right is denied to visiting researchers, the quality of US science will suffer.

Since February 2003, Iranian physicist Shahram Rahatlou has been barred from entering the government lab where he worked. The security officials who came to his door never told him what he had done wrong. They said there would be no appeal.

The lab is not in Iran, but at the Stanford Linear Accelerator Center (SLAC) in California. Rahatlou had been working there for nearly five years when officers from the US Department of Energy (DOE) visited him. He had, by all accounts, been an exceptional physicist. SLAC is a purely



Top-quark mass analysis groups, from top to bottom and left to right: (Top Row) Mel Shochet, Jahred Adelman (U. of Chicago), Erik Brubaker, Adam Gibson (U. of California--Berkeley), Un-Ki Yang, Young-Kee Kim (U. of Chicago), (Second Row) Pedro Movilla Fernandez, John Freeman, Igor Volobouev, Lina Galtieri, Jeremy Lys (UC Berkeley/LBNL), (Third Row) Pekka Sinervo, Jean-Francois Arguin (U. of Toronto)., (Bottom Row) Kohei Yorita, Kunitaka Kondo (Waseda University). (Click on image for larger version.)

[Result of the Week Archive](#)

Announcements

Third Thursday Lunchtime Cleanup Today

There will be a Lunchtime Cleanup from 11:45 a.m. to 1:30 p.m. today. Meet at the East Ground Floor entrance to Wilson Hall for transportation to the cleanup site. Cleaning gear is provided, and hot dogs and refreshments will be served. Contact Bob Lootens at x3303 for more information.

[more information](#)

NIU Scicamp

NIU is offering a week-long residential science camp experience this summer that would thrill most young scientists. Scicamp takes place the week of July 18-23, 2004 and costs \$495.00 (discounted to \$475.00 if registered before June 1st and an additional \$25.00 discount for NIU

academic laboratory, which houses no classified research, and the experiment on which he was working makes all its findings publicly available. Even the lab's scientific leaders don't know why Rahatlou was barred from the premises (see page 229).

[read more](#)

employee's children). Information, applications, and campership information are [available online](#).

Fermilab Picnic and Cougar Game
DEADLINE TO REGISTER FOR THIS
EVENT IS MAY 28

The picnic will be held Saturday, July 10 at the Kane County Cougar Stadium beginning at 4 PM. The cost for the event is \$12.00 per person.

[more information](#)