

Calendar

[Have a safe day!](#)

Thursday, Sept. 3
2:30 p.m.

[Theoretical Physics Seminar](#) -

Curia II
Speaker: Peter Skands,
Fermilab

Title: Towards a
Phenomenology of Everything
3:30 p.m.

DIRECTOR'S COFFEE
BREAK - 2nd Flr X-Over
THERE WILL BE NO
ACCELERATOR PHYSICS
AND TECHNOLOGY
SEMINAR TODAY

Friday, Sept. 4
3:30 p.m.

DIRECTOR'S COFFEE
BREAK - 2nd Flr X-Over
4 p.m.

[Joint Experimental-Theoretical Physics Seminar](#) - One West

Speaker: Sarah Eno,
University of Maryland
Title: New DZero Results on
the W Width and Charge
Asymmetry, and on Gauge
Couplings

[Click here](#) for NALCAL,
a weekly calendar with
links to additional
information.

Campaigns

[Take Five](#)

[Tune IT Up](#)

Weather

Special Announcement

All-Hands meeting 11 a.m. Wednesday, Sept. 9

On Wednesday, Sept. 9, at 11 a.m., Director Pier Oddone will discuss the status of the laboratory and operational initiatives. All Fermilab employees are encouraged to attend.

Quality Assurance

Audit coming up: Know your representative

IQA

Teams at Fermilab have spent the last two years working to make sure that the processes you use are the best possible.

As part of Fermilab's Integrated Quality Assurance program, teams of employees and EG&G contractors have worked since January 2007 planning, assessing and helping employees improve quality controls for their work.

Between Sept. 14-18, the Department of Energy will assess the implementation phase of that program throughout the laboratory. A group of quality-assurance personnel from other laboratories and DOE representatives from the DOE's Chicago site office will be at Fermilab investigating how well improvements to employees' work processes have been identified and implemented.

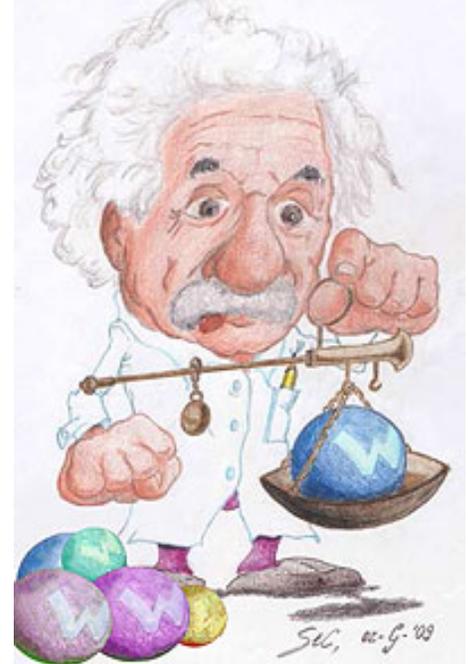
Fermilab's quality assurance representatives are currently contacting employees to set up interviews between the employee and assessment team members. Even if you are not contacted by Sept. 14, members of the assessment team may need to ask you questions about your work processes.

You should know:

- Who is your Quality Assurance

Fermilab Result of the Week

Quantum mechanics, DZero style



To study the range of possible masses the W boson can take, DZero scientists had to make half a million measurements, although they used more complex equipment than Einstein does here. This particular measurement is the single most precise one so far. *Drawing courtesy of Sergio Cacciatori.*

Particle physicists expend a lot of effort measuring the mass of the tiny particles they create. Accurately determining the mass of these objects is an extremely important contribution to our understanding of the micro-realm.

However, when scientists speak about the mass of a particular subatomic particle, they are unintentionally misleading. The reason is that when physicists measure the mass for many particles of a particular type, (such as the top quark or the W boson) they find that the particles do not have a single, unique mass, but rather a range of masses. All of the masses in this range are close to the mass you find quoted in textbooks. Thus, the mass should be more accurately called the average mass of a particle.

The reason that particles do not have a unique mass stems from the principles of quantum mechanics. In 1927, quantum physics pioneer Werner Heisenberg realized that it is impossible to know with total precision

 Sunny
77°/52°

[Extended Forecast](#)
[Weather at Fermilab](#)

[Current Security Status](#)

[Secon Level 3](#)

[Wilson Hall Cafe](#)

Thursday, Sept. 3
- Tomato Florentine
- *Pork BBQ sandwich
- Kielbasa & sauerkraut
- Chicken Marsala
- Smoked turkey melt
- Assorted sliced pizza
- SW chicken salad w/roasted corn salsa

*Carb restricted alternative

[Wilson Hall Cafe Menu](#)

[Chez Leon](#)

Thursday, Sept. 3
Dinner
- Coquille St. Jacques
- Veal saltimbocca
- Roasted potatoes
- Julienne of peppers, onions and basil
- Hazelnut cake w/crème Anglais

Wednesday, September 9
Lunch
- Chicken Marbella
- Saffron rice w/vegetables
- Chocolate cheesecake w/ strawberry coulis

[Chez Leon Menu](#)

Call x3524 to make your reservation.

[Archives](#)

Representative? (Look at the [QAR list](#) to check your answer.)

- How do you ensure that the work you do achieves the expected results?
- Do you know the practices and written procedures that apply to the work you do?

Work with your supervisor and Quality Assurance Representative if you don't know the answers.

Between February and April of this year, quality-assurance representatives met with employees to do an As-Is Assessment of processes and quality controls that employees use for work. With employees' help, quality-assurance teams determined corrective actions that will improve the processes. Quality assurance professionals identified approximately [100 corrective actions](#) that will make Fermilab operations work processes more efficient and effective. They submitted a summary of these actions as [a report](#) to the Department of Energy and began working with employees to implement the improvements.

Fermilab Director Pier Oddone will address Fermilab's Integrated Quality Assurance program's progress assessment as part of a state of the laboratory all-hands meeting at 11 a.m. in Ramsey Auditorium on Wednesday, Sept. 9.

[University Profile](#)

The University of Manchester



Front row from left: Maiko Takahashi, Clara Nellist and Christian Schwanenberger. Back row from left: Graham Wilson (now with the University of Kansas), Pengfei Ding, Stefan Soldner-Rembold, Miika Vesterinen, Krisztian Peters, Yvonne Peters, Luke Thompson, Terry Wyatt and Tim Head. Not pictured: Phil Rich, Louise Suter, Tammy Yang, Mark Owen and Un-ki Yang.

NAME:
[The University of Manchester](#)

simultaneously the energy of an object and the time over which it is observed. Since Albert Einstein showed that mass and energy are one and the same, this boils down to stating that an object that lives a very short time will have a broad range of observed masses, while a long-lived particle will have a precisely determined mass.

DZero scientists have recently [investigated](#) the range of masses possible for the W boson, which is a very short-lived particle and one of the carriers of the weak force. This measurement is very attractive because physicists can predict it with considerable precision (to an accuracy of 0.1 percent). Further, theoretical physicists understand very well how new theories would affect their prediction of this range. So, an accurate measurement will strictly constrain theoretical predictions of new physical phenomena. This measurement is the single, most accurate measurement to date, with a precision of about 3 percent.

The data and Standard Model predictions were in excellent agreement. Once again, precise DZero data can be used to constrain ideas about new physical models.

Editor's note: *This measurement will be shown at the Wine and Cheese lecture scheduled at 4 p.m. in One West on Friday, Sept. 4.*

-- Don Lincoln



Top: Tim Anderson, Minghui Chen, Sarah Khan, Martin Grammer, Feng Guo, Jun Guo
Middle: Mike Hübner, Julia Huber, Bob McCarthy, Alan Mitchell, Iyona Oda, Pierre Petit
Bottom: Michael Rijssenbilt, Holger Schellman, Jan Skar, Matt Warkentin, Sahal Yasuda, Junjie Zhu
1 Northwestern University, Evanston, IL, 60208, USA 2 University College Dublin, Dublin, Ireland
3 University of Maryland, College Park, MD, 20742, USA 4 State University of New York, Stony Brook, NY, 11794, USA
5 University of Notre Dame, Notre Dame, IN, 46556, USA 6 University of Mississippi, University, MS, 38677, USA
7 IAL, Université Paris Sud, IN2P3/CNRS, Orsay, France 8 USPC, Université Louis, IN2P3/CNRS, HPS, Grenoble, France

The difficulty of this measurement required a large team of scientists to complete.

[Fermilab Today](#)[Result of the Week](#)[Safety Tip of the Week](#)[User University Profiles](#)[ILC NewsLine](#)

Info

Fermilab Today

is online at:

www.fnal.gov/today/

Send comments and suggestions to:

today@fnal.gov

Visit the Fermilab [home page](#)

HOME TOWN:
Manchester, United Kingdom

MASCOT:
There are three bees on the university crest, but we don't really have a mascot.



SCHOOL COLORS:
Purple, yellow and grey

PARTICLE PHYSICS COLLABORATIONS:
ATLAS, BaBar, CDF, DZero, LHCb, NEMO-3 and SuperNEMO

EXPERIMENTS AT FERMILAB:
DZero (mainly) and CDF

SCIENTISTS AND STUDENTS AT FERMILAB:
Four faculty, three postdocs and six Ph.D. students currently work on Fermilab experiments. Two of the faculty, all the postdocs and three of the Ph.D. students are based at Fermilab. During the summer two undergraduate students also work at the laboratory.

COLLABORATING AT FERMILAB SINCE:
1999, when Graham Wilson and Terry Wyatt joined DZero

MAJOR CONTRIBUTIONS TO FERMILAB EXPERIMENTS:
DZero trigger development and data quality monitoring; calorimeter calibration and lepton identification; convener of Higgs, top and electroweak physics groups; physics coordinator, institutional board chair and two Dzero spokespersons. On CDF, charged Higgs searches and convener of top mass group. Hugh Montgomery, former associate director for research at Fermilab, studied as an undergraduate and graduate student at Manchester.

PARTICLE PHYSICS RESEARCH FOCUS:
We have a wide spectrum of research interests: Higgs searches and electroweak physics on DZero, top physics on CDF, DZero and ATLAS; tau and B physics on BaBar and neutrinoless double beta decay on NEMO. We have a strong hardware group, specializing in 3-D silicon and we are part of the Cockcroft Institute with several accelerator physicists. Our theorists work on a wide range of subjects from quantum chromodynamics to



Stable operation of the DZero calorimeters requires constant vigilance by this team of experts.

In the News

Museum brings new butterflies to Fermilab

From *Batavia Republican*, Sept. 2, 2009

With butterfly nets and a cooler full of larvae, curators from Chicago's Peggy Notebaert Nature Museum walked alongside butterfly specialists and onlookers from Fermilab.

"There it is," said Doug Taron, curator of biology at the museum. Taron excitedly stopped mid-sentence and pointed at the turtlehead plant needed for the Baltimore checkerspot butterfly species to grow.

Fermilab and the museum are looking to introduce the Baltimore checkerspot butterfly into the vast fields of Fermilab in hopes that it can grow and keep the species vibrant.

"This is a really, really beautiful species of butterfly here," Taron said. "It's one of the flashier species in the Chicago area."

[Read more](#)

Accelerator Update

Aug. 31 to Sept. 2

- M1 beam pipe repairs continue
- Pbar developed vacuum problem
- CUB Chiller #3 passed pressure test
- Beam to MiniBooNE today

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

Announcements

supersymmetry and neutrino physics.

WHAT SETS PARTICLE PHYSICS AT MANCHESTER UNIVERSITY APART? We are one of the largest particle physics groups in the UK with more than 100 members. Theorists, experimentalists and accelerator physicists collaborate very closely in our group, for example by jointly supervising Ph.D. projects. Particle physics in Manchester has a long tradition: Exactly 100 years ago, in 1909, Geiger, Marsden and Rutherford discovered the nucleus at the University of Manchester in the gold foil experiment.

FUNDING AGENCY:
Science and Technology Facilities Council (STFC) and the Royal Society

FAVORITE NATIONAL LABORATORY:
Fermilab



The University
of Manchester

View all [University profiles](#)

Latest Announcements

[Use Fermilab Toastmasters Club to help you prepare for that next presentation - Sept. 3](#)

[S&T Policy: A View from Washington, D.C. - Sept. 18](#)

[Weekly time sheets due Sept. 4](#)

[Country dancing now in Kuhn Village Barn](#)

[Vacation policy changes for exempt employees in effect](#)

[International folk dancing returns to Kuhn Village Barn on Sept. 3](#)

[Bowlers wanted Wednesday nights](#)

[Thai Village restaurant discount](#)

[Robotics for Fermilab employees' children Sept. 9, 12](#)

[Argentine Tango - through Sept. 9](#)

[Scrapbooking Open House - Sept. 14](#)

[New Lo Cardio Class - Sept. 14 - Nov. 16](#)

[New Tai Chi For Health class - Sept. 14 - Nov. 16](#)

[MathWorks and Avnet demonstration Sept. 23](#)

[URA Visiting Scholars Program now accepting applications](#)

[Bristol Renaissance Faire discount tickets](#)

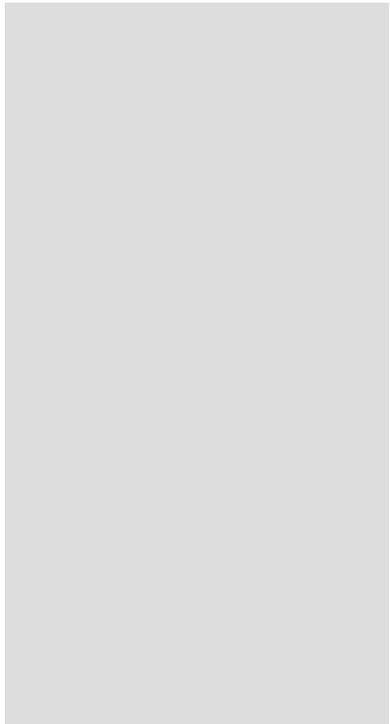
[Six Flags Great America discount tickets](#)

[Raging Waves Waterpark online discount ticket program](#)

[Mosaico Hispanico - celebrating Hispanic music and dance - Sept. 19](#)

[English Country Dancing - Sept. 20](#)

[Sign up for fall Science Adventures classes](#)



[Office 2007 New Features class offered in September](#)

[Buttered Rum performs on Fermilab Arts Series Oct. 24](#)

[Fred Garbo Inflatable Theatre - at Fermilab Arts Series - Nov. 7](#)

[Process piping \(ASME B31.3\) class offered in October and November](#)

["The Night Before Christmas Carol" at Fermilab Arts Series - Dec. 5](#)

[Additional Activities](#)

[Submit an announcement](#)