

Highlights from our blog

LHC experiments eliminate more Higgs hiding spots

August 22, 2011



Two experimental collaborations at CERN's Large Hadron Collider announced that they have significantly narrowed the mass region in which the Higgs boson could be hiding. The ATLAS and CMS experiments excluded with 95 percent certainty the existence of a Higgs over most of the mass region from 145 to 466 GeV.

The Daya Bay Reactor Neutrino Experiment begins taking data

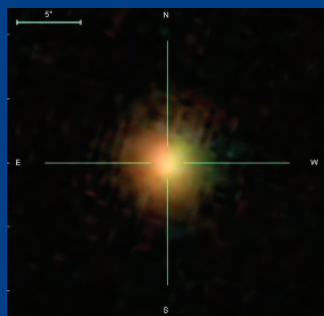
August 16, 2011



The Daya Bay Reactor Neutrino Experiment has begun its quest to answer some of the most puzzling questions about the elusive elementary particles known as neutrinos. The experiment's first completed set of twin detectors is now recording interactions of antineutrinos as they travel away from the powerful reactors of the China Guangdong Nuclear Power Group in southern China.

KIPAC researchers track binary black holes

August 4, 2011



Two scientists from the Kavli Institute for Particle Astrophysics and Cosmology have been testing a method to look past the intense radiation pouring out of merging galaxy pairs to see the supermassive black holes at their cores. The researchers want to track how black holes located in the centers of merging galaxies spiral in toward each other until they also join, forming a single even-more-massive black hole. This can give astronomers valuable information about galactic evolution.

Antiproton mass measured with unprecedented precision

July 28, 2011



A new, precise measurement of the mass of the antiproton by the ASACUSA experiment at CERN will help scientists understand why matter dominates our universe when theory says the big bang created matter and antimatter in equal amounts.

Tevatron experiments close in on Higgs particle

July 27, 2011

The CDF and DZero collaborations at Fermilab continue to increase the sensitivity of their Tevatron experiments to the Higgs particle, leaving a narrow window where the particle may be hiding. The experiments are on track to collect enough data by the end of September to close this window if the Higgs does not exist.

More than one way to search for SUSY

July 26, 2011



Experiments at the Large Hadron Collider have yet to find signs of supersymmetric particles, but physicists will significantly improve their knowledge of SUSY in the coming year through indirect methods, which could include the discovery of the Higgs boson.

Fermilab experiment discovers a heavy relative of the neutron

July 20, 2011

Fermilab's CDF experiment announced the observation of a new particle, a heavy relative of the neutron. While the Standard Model predicted its existence, the observation is significant because it strengthens the understanding of how matter forms.

CERN brings hardware into the open

July 15, 2011



Hardware and software go hand in hand—one doesn't work without the other. Despite being so closely linked, the two industries operate very differently. Javier Serrano, a hardware designer for accelerator systems at CERN, set out to change that.

SLAC X-rays help discover new drug against melanoma

July 12, 2011



Accelerators at three national laboratories contributed to the development of a drug designed to disrupt malignant melanoma, the deadliest form of skin cancer. The new drug was so successful in its latest round of testing in humans that the tests were halted so patients in the trial who were receiving other treatments could receive the new medicine.

A particle physics private eye takes on the great interaction caper

July 11, 2011



While giving a tour of Fermilab to his aunt and grandmother, a neutrino scientist faces the question that puts almost every particle physicist to the test—"What do you do?" (In English, please.)

Particle accelerator reveals what the first birds looked like

July 1, 2011



With the help of a particle accelerator at the SLAC National Accelerator Laboratory, scientists took a big step in determining what the first birds looked like more than 100 million years ago, when their relatives the dinosaurs still ruled the Earth.

An ear for science: The Particle Physics Wind Chime

June 23, 2011

Like particle physicists the world over, Stanford's Matt Bellis is always looking for ways to share his research with the public. "I had the idea of the BaBar detector as an instrument," Bellis said, but not one played by human hands. It would be played by the particles gusting through it, like wind through a wind chime.

Pledges of support keep Mideast SESAME project on track

June 22, 2011

The latest report on SESAME, a synchrotron light source that will be the first big international science center in the Middle East, says it is progressing both technically and financially on the road to its scheduled opening in 2015. At the spring meeting of the SESAME Council, member nations pledged both money and in-kind donations to help bridge a \$35 million budget gap that stands in the way of completing the project and putting it into operation.

Japan's T2K experiment observes candidates for electron neutrino appearance

June 15, 2011

The T2K experiment in Japan observed six particle events that indicate the oscillation of muon neutrinos into electron neutrinos, a long-sought signal that allows scientists to better understand a phenomenon known as neutrino oscillation.

Endeavour launch lifts search for dark matter, antimatter to new heights

May 16, 2011



On May 16, the Endeavour launched from the Florida coast on its final mission. The NASA shuttle will deliver to the International Space Station the largest physics experiment to blast into space, the Alpha Magnetic Spectrometer.