

LAWRENCE LIVERMORE

REPORT

A weekly collection of scientific and technological achievements from Lawrence Livermore National Laboratory: May 4-11, 2009.

Swine flu may be weaker than you think



The H1N1 virus

In recent research, Laboratory computer scientists Jonathan Allen and Tom Slezak did not find similarities between swine flu and historical strains that spread widely, with catastrophic effect.

Their findings are based on just one complete sample and several fragmentary samples of swine flu, but fit with two other early analyses.

Taken together, all these findings fit the notion that more Mexicans are infected than was originally thought, that severe cases represent a fraction of the outbreak and that mortality rates are lower than originally feared.

"If the calculations are correct," Slezak said, "it's indeed supportive of the other data that seems to agree that this is not going to be a catastrophic outbreak."

Wired recently featured an article on the research. To read more, go to <http://www.wired.com/wiredscience/2009/05/swinefluglimpse/>

UK Independent dives into NIF's Brian MacGowan



Brian MacGowan is leading the drive toward everlasting, clean energy.

Fusion energy is on the front burner again as the world tries to tackle the 21st century's energy problems.

And the National Ignition Facility, scheduled to be dedicated later this month, may just be the answer.

The United Kingdom's *Independent* recently featured an article on British-trained Brian MacGowan, program director of inertial confinement fusion and high energy density science program for NIF.

To read more go to <http://www.independent.co.uk/environment/green-living/laser-quest-the-scientist-with-a-planetsaving-plan-straight-out-of-spiderman-1676240.html>

Physics highlights Lab research in "smart" components



Physics, a small commentary on high-impact and interesting recently published articles in *Physical Review* journals, highlighted work by the Lab's Michael Manley on "smart" components.

Recent work by Manley shows that under certain equilibrium conditions energy is not distributed uniformly but is, in fact, concentrated in small regions randomly throughout a crystal.

The usual viewpoint is that in equilibrium energy will distribute itself uniformly and homogeneously throughout a crystal lattice. So in a perfect crystal in equilibrium, any given location within the crystal will look like any other.

But this new surprising observation that energy is not distributed uniformly in a crystal could lead to a new class of "smart" components for the design of more energy efficient technologies.

Physics highlights exceptional papers from the *Physical Review* journals. To accomplish this, *Physics* features expert commentaries written by active researchers who are asked to explain the results to physicists in other subfields.

To read more, go to <http://physics.aps.org/synopsis-for/10.1103/PhysRevB.79.134304>

***Wired* takes a snapshot of NIF (use Wired logo and NIF photo)**



The main control room at the National Ignition Facility.

Using 192 separate lasers and a 400-foot-long series of amplifiers and filters, scientists at the Laboratory's National Ignition Facility (NIF) hope to create a self-sustaining fusion reaction like the ones in the sun or stars -- only on a much smaller scale.

The hope is that this reaction will release more energy than the lasers put in and perhaps redefine the global energy crisis in the process.

Wired visited the National Ignition Facility just as the final lasers were coming on line.

Go to http://www.wired.com/science/discoveries/news/2009/05/gallery_nif for a virtual tour of one of the most sophisticated scientific facilities on the planet.

Climate change may not affect wildfires



A wildfire burns in Yukon Flats, Alaska in 2006.

Recent research by Laboratory scientist Tom Brown shows that more wildfires aren't necessarily affected by rising global climate temperatures.

Instead, there is a more direct correlation between wildfires and the type of vegetation in the area that could override the effects of climate change on wildfire occurrence.

Brown along with Philip Higuera of Montana State University and colleagues looked at the direct and indirect impacts of millennial scale climate change on fire occurrence in the south-central Brooks Range in Alaska. The team looked at historical fire occurrence by analyzing sediments found at the bottom of lakes.

For more information, go to

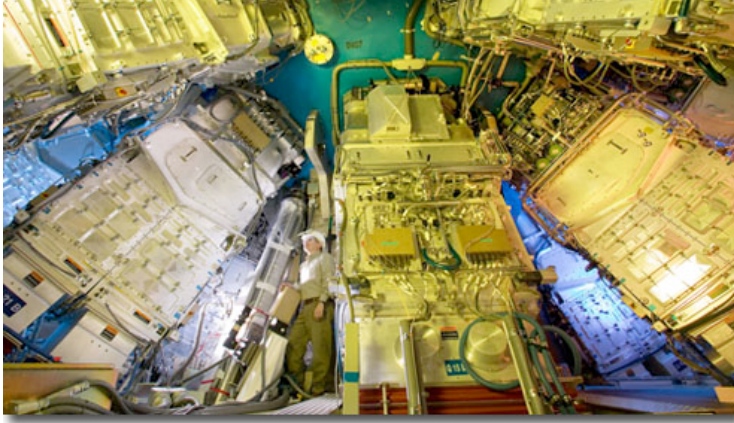
http://www.usatoday.com/weather/climate/globalwarming/2009-05-06-climate-change-wildfires_N.htm

Latest *Newsline* available



Newsline provides the latest Lab research and operations news. See the most recent issue at <https://newsline.llnl.gov>

Photo of the week



Looking to the stars: Henry Gonzales stands underneath the 10-meter diameter NIF target chamber, which is surrounded by the beam tubes that will deliver the laser pulse to the target. In 2010, NIF will focus the intense energy of 192 giant laser beams on a BB-sized target filled with hydrogen fuel – fusing, or igniting – the hydrogen atoms' nuclei in the world's first controlled thermonuclear reaction. The reaction is the same energy generated in stars and the sun.

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