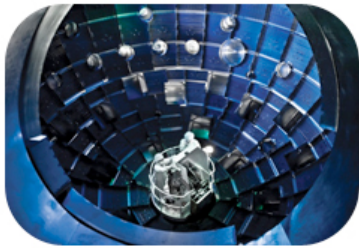


LIVERMORE LAB REPORT

A weekly review of scientific and technological achievements from Lawrence Livermore National Laboratory, March 5-9, 2012

nature REACHING FOR THE STARS



The National Ignition Facility target chamber.

The scientists that work in the Laboratory's National Ignition Facility are reaching for the stars and as the days pass, they are getting closer and closer.

While those same scientists are reaching for the stars, their goal is to create a miniature star on Earth in the form of fusion. Fusion is the same source that powers the sun and the stars.

Experiments already have started and the goal is achieve "ignition" by the end of the year.

To read more, go to [Nature](#).

WIRED IF YOU BUILD IT



A mushroom cloud built entirely of legos. Photo courtesy of Bruce Lowell.

How exactly does a mushroom cloud form? You could look to Bruce Lowell, who formed a Lego mushroom cloud (above) on a Lego sphere he built about 10 years ago, popularly known as the Lowell sphere. It's part of a series of scientific creations built entirely from Lego bricks.

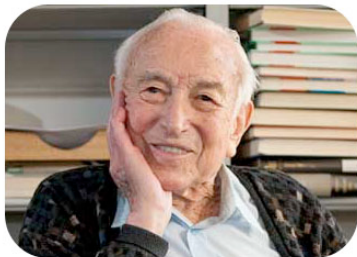
While Lowell used legos, real bombs come in several explosive varieties, including fusion and fission bombs. Hiroshima's "Little Boy" and Nagasaki's "Fat Man," perhaps the most famous bombs in history, were both fission bombs.

As for a real mushroom cloud, the Lab's Dave Dearborn says the hot bubble that forms after a nuclear explosion forms a rolling flow of hot material rising in the center, which then rolls down at the edges to form the mushroom cap.

To read more, go to [Wired](#).



A LIFETIME OF DISCOVERY



Dick Post

The drive to discover has kept Dick Post going for almost 100 years. At 94, the Lab physicist is still cranking out patents and inventions, including an electric car that doesn't use a battery.

His idea of retirement is coming in to his office at the Laboratory only four days a week. He has worked there since it opened more than 60 years ago.

One day, a spinning cylinder could sit in your basement and power your entire house. It shares technology with maglev trains and nuclear fusion -- technology that is Post's specialty.

"I like what I'm doing," he says. "And it's a great environment."

To see the whole story, go to [KGO-TV](#)..

physicstoday PLASTICS, MY FRIEND, PLASTICS



Natalia Zaitseva examines the new plastic developed at the Laboratory. The instrument she holds produces UV light that causes the material to glow blue.

Your premade sandwich from the corner deli is wrapped in it. A child's Big Wheel is made mostly of it. But can that same plastic detect the material used to make a nuclear weapon?

According to the Lab's Natalia Zaitseva, the answer is yes.

In a key discovery, a team of LLNL researchers has developed the first plastic material capable of efficiently distinguishing neutrons from gamma rays, something not thought possible for the past five decades or so.

As a result, the new technology could assist in detecting nuclear substances such as plutonium and uranium that might be used in improvised nuclear devices by terrorists. It also could help in detecting neutrons in major scientific projects.

To read more, go to [Physics Today](#).

LLNL applies and advances science and technology to help ensure national security and global stability. Through multi-disciplinary research and development, with particular expertise in high-energy-density physics, laser science, high-performance computing and science/engineering at the nanometer/subpicosecond scale, LLNL innovations improve security, meet energy and environmental needs and strengthen U.S. economic competitiveness. The Laboratory also partners with other research institutions, universities and industry to bring the full weight of the nation's science and technology community to bear on solving problems of national importance.

To send input to the *Livermore Lab Report*, send [e-mail](#).

The *Livermore Lab Report* [archive](#) is available on the Web.