

LIVERMORE LAB REPORT

A weekly review of scientific and technological achievements from Lawrence Livermore National Laboratory, Aug. 15-19, 2011.

Los Angeles Times

THERE'S A YOUNG MOON ARISING



The moon and Earth may be younger than once thought.

An analysis of a lunar rock led by Laboratory researcher Lars Borg raises questions about when and how the moon was formed. It may be 200 million years younger than widely believed.

The moon is thought to have formed from debris ejected into space after a Mars-sized body collided with the still-molten Earth about 4.5 billion years ago.

But the new analysis of a rock brought back to Earth in 1972 by Apollo 16 astronauts claims the moon may only be 4.36 billion years old. Or, if not, the moon may never have had the magma ocean that scientists think covered its surface soon after it formed.

The findings published online Wednesday by the journal *Nature* could send lunar scientists back to the drawing board to reconsider the moon's evolution.

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



IN THE PRIVACY OF ONE'S HOME

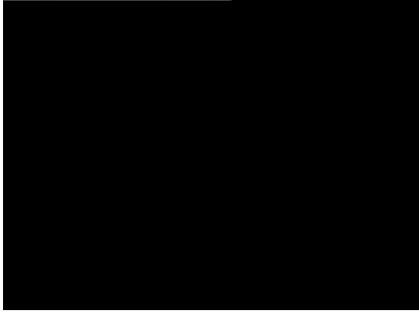


Joseph McMillan, Vincent Parker, Todd Fahlstrom and Kevin Mori won first place at the Lab-sponsored Entrepreneurship Academy.

There's a new way for people to test themselves for sexually transmitted diseases -- behind the closed doors of their own homes.

Four California Maritime Academy students working this summer at the Lab's Entrepreneurship Academy earned first place for a product they designed to help take the embarrassment out of testing for chlamydia and similar conditions.

The students' commercial plan was developed through this summer's Lawrence Livermore National Laboratory Entrepreneurship Academy. ~~Sponsored by the Tri-V atoeffreohato.~~



Blue Gene supercomputer

Laying chips vertically, instead of side by side, reduces the distance data has to travel by 1,000 times, making the chips faster and more efficient.

As more and more cores are added to chips it becomes increasingly difficult to deliver uniform power to each one. By stacking them vertically and reducing the length of the connections between them, companies are looking to overcome this problem,

Using these high-rise multi-core chips also should increase processor speeds and reduce power consumption. Advantages like these also make 3D chips attractive for use in supercomputers. IBM says it is developing the technology for use in Blue Gene/L.

The ultra powerful number cruncher, installed at the Laboratory already is capable of 280.6 trillions calculations per second.

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



LLNL mechanical engineer Mike King (left) and physicist Willy Moss watch a compression test of a helmet pad.

Researchers at the Laboratory have found that soldiers using military helmets one size larger and with thicker pads could reduce the severity of traumatic brain injury (TBI) from blunt and ballistic impacts.

Their results came after a one-year study funded by the U.S. Army and the Joint IED Defeat Organization (JIEDDO) to compare the effectiveness of various military and football helmet pads in mitigating the severity of impacts.

The findings have been presented to the Program Executive Office (PEO) Soldier, which is directed by Brig. Gen. Peter Fuller and is the U.S. Army acquisition agency responsible for everything a soldier wears or carries.

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



STUDENT APPLIES HIS TALENTS AT NIF



Jorge Castro Morales has created apps for mobile devices that allow for new and innovative ways for the world to learn about what's happening at NIF.

One of the many summer students at the Laboratory is Jorge Castro Morales. A computer engineering student at the Universidad del Turabo at Gurabo, Puerto Rico, Morales became interested in working at the Lab when a friend who worked at LLNL last summer told him how much he enjoyed it.

After being contacted about a possible opportunity by his adviser, through collaboration with Computation's Tony Baylis, he jumped at the chance to join the National Ignition Facility (NIF) and assist in building Android and iPad apps.

The Android NIF application is now available on the Android market. Since its launch, the NIF Android app has been downloaded more than 100 times from more than 10 countries with an average rating of 4.8/5 stars.

"I've done a lot of internships, but the position at the Lab seemed really different than others," he said. "And the opportunity seemed perfect because I love programming in Java and I love new technologies."

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

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.

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