

LAWRENCE LIVERMORE REPORT

A weekly collection of scientific and technological achievements from Lawrence Livermore National Laboratory: Oct. 12-19, 2009.

Livermore pitches in for Alaskan energy project



The Laboratory has partnered with the Alaskan company Cook Inlet Region Inc. (CIRI) to convert coal to gas to create electricity.

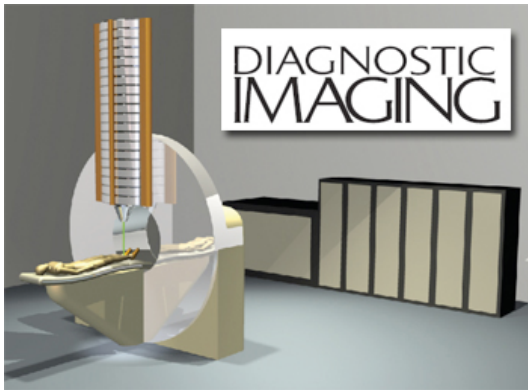
The concept, called underground coal gasification or UCG, taps the energy content of coal without mining it. Instead, the coal would be transformed into gas hundreds of feet underground.

Livermore will serve as a UCG technology adviser to CIRI in technical analyses related to UCG performance and environmental best practices and carbon capture and sequestration.

The Laboratory has been working on UCG since the 1970s gas crisis. If regulations are approved, CIRI would be the first UCG project in the United States.

To read more about the CIRI project, go to the *Anchorage Daily News* at <http://www.adn.com/money/story/967443.html>

Doors open for high-energy cancer therapy



Diagnostic Imaging recently featured an article on the LLNL-developed proton therapy, which promises to reshape radiation oncology.

In the procedure, well-aimed beams of protons deposit more of their energy inside cancerous tissue and less in neighboring healthy tissue.

While the technology is still in the prototype phase (the machine is still quite large and expensive), the clinical potential has spurred efforts to come up with cheaper and much smaller ways to channel protons to cancer tumors inside patients. These include a "dielectric wall" developed by Lawrence Livermore.

If the Livermore technology can produce sufficient protons to treat patients, it would be a snap to utilize their streams of protons to make images.

To read more, go to

https://publicaffairs.llnl.gov/news/lab_report/2009/oct/DI_SCAN_Sept_29_2009.pdf

Well-grounded method tracks water quality



Ever wonder what's in your drinking water?

Brad Esser can tell you not only what's in it, but how old it is and where it came from. Esser, leader of the Laboratory's role in the Groundwater Ambient Monitoring Assessment (GAMA) program (a partnership between the State of

California, U.S. Geological Survey and LLNL), and his team are instrumental in assessing the health of the state's groundwater and how contaminants in the groundwater may or may not reach the well supplying drinking water to your community.

The sustainable use and protection of groundwater is something that Californians should be concerned with because 40 percent of the state's residents rely on groundwater for a portion of their drinking water.

GAMA is California's comprehensive groundwater quality assessment program. The agency collects data by testing the untreated, raw water in different types of wells for naturally occurring and manmade chemicals. GAMA compiles these test results with existing groundwater quality data from several agencies.

For more on the Lab's role, go to

<https://newsline.llnl.gov/rev02/articles/2009/oct/10.16.09-groundwater.php>

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



On the horizon: Ann Stephens of LLNL (right), helps Tiana Gata of Weston Ranch High School as she learns to solder at the "Ubiquitous Electronics"

workshop during the Expanding Your Horizons (EYH) in Science and Math Conference for young women from Stockton, Lodi, Manteca, Tracy and Ripon school districts. The Laboratory sponsors the EYH workshops.

LLNL is managed by Lawrence Livermore National Security, LLC, for the U.S. Department of Energy's National Nuclear Security Administration.

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 <mailto:labreport@llnl.gov>.

The Livermore Lab Report archive is available at: https://publicaffairs.llnl.gov/news/lab_report/2009index.html