
In other news

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New Mexico helps the Fukushima nuclear reactors

A new technology developed by Los Alamos National Laboratory researchers may save Japan at least a decade worth of clean-up efforts at its still highly radioactive Fukushima Daiichi nuclear plants and in the process greatly reduce radiation exposure to workers. The technology—muon tomography (also called cosmic-ray radiography)—will allow workers to safely peer inside the cores of the reactors and create high-resolution images of the damaged material inside without breaching the cores themselves.

Muon tomography uses secondary particles generated when cosmic rays collide with upper regions of the Earth's atmosphere to create images of the objects that the muon particles penetrate. The process is similar to an X-ray image, except that muons are produced naturally and do not damage the materials they contact. Earlier versions of the process were used in mapping the interior of the Great Pyramid of Giza,

for example, but Los Alamos' approach represents a vast improvement over earlier technology.

"Los Alamos researchers began working on an improved method for muon radiography within weeks of the 2011 earthquake and tsunami that damaged the Fukushima reactor complex," said Christopher Morris, chief scientist and leader of the Los Alamos Muon Tomography Team. "Within 18 months we had refined our technique and published a paper showing that the Los Alamos method was superior to traditional muon radiography techniques for remotely locating and identifying nuclear materials, and that it could be employed for field use."

Los Alamos will assist the Toshiba Corporation in developing a Muon Tracker for use at the Fukushima plant as part of an impending partnership.

"Our recent technical work has clearly shown that the muon scattering technique pioneered at Los Alamos provides a superior method for obtaining high-resolution images of nuclear materials inside structures, and this will allow plant operators to establish the condition of reactor-core material without the need to actually get inside," said Duncan McBranch, Los Alamos' Chief Technology Officer.

"One of the most challenging, time-consuming and potentially dangerous tasks in cleaning up after a reactor accident," McBranch added, "is determining the condition and location of the core material, especially when the material itself may have melted and flowed to a different part of the building. Invasive techniques such as video endoscopy or introduction of robots run the risk of releasing radiation. Furthermore, those techniques at best offer a partial view of material location. Muon tomography will enable plant operators to see the location of the nuclear material inside, determine its condition and provide crucial insight that can inform the design of a safer and faster cleanup. We are hopeful that our partnership with Toshiba will assist the Tokyo Electric Power Company and the Japanese government in their efforts to accelerate cleanup operations in the safest way possible."

Los Alamos' muon tomography technology also has the potential of being deployed in locations around the world to help detect smuggled nuclear materials.

For additional information, check the YouTube video [Los Alamos, Toshiba probing Fukushima with cosmic rays](#).

2014 Venture Acceleration Fund winners announced

Five businesses from Santa Fe, two from Rio Arriba County, two from Taos County and one from Albuquerque have been selected to receive the 2014 Venture Acceleration Fund (VAF) awards. This is the first year that companies from Rio Arriba County are among the VAF winners.

FLUTe, an Alcalde-based manufacturer of flexible liners for mapping groundwater contamination and municipal water supplies, and Purple Adobe Lavender Farm, an Abiquiu company hoping to expand its lavender-based body care and culinary products into the national market, will be among the 10 VAF recipients sharing the more than \$400,000 awarded this year by Los Alamos National Laboratory's management company, Los Alamos National Security, LLC (LANS), and its partners.

The grant awards are administered by the Regional Development Corporation in coordination with the Laboratory. LANS invested \$306,000; the Santa Fe city government \$30,000; Los Alamos County \$25,000 and the New Mexico Manufacturing

Extension (MEP) Partnership also provided \$25,000. A previous year's grant recipient contributed another \$30,000 by repaying Los Alamos Connect under a payback clause after having been sold to Google.

"Since the VAF was initiated in 2006, Los Alamos National Security has invested approximately \$3 million in 49 New Mexico businesses," said David Pesiri, director of the Feynman Center for Innovation. "Now it's a community effort, with Los Alamos County, the city of Santa Fe and MEP stepping forward to partner with us. It's encouraging to see that the payback triggers we implemented in 2013 are already creating sustainability for the fund," Pesiri explained.

"This year brought in more qualified applicants than ever before, and I am excited to see the improvements in the economic climate the winners will help create here in northern New Mexico," said Kurt Steinhaus, Los Alamos' Community Programs Director.

For a full list of VAF recipients, please go to the [Ten local businesses to receive Venture Acceleration Fund awards](#) web page.

New scholarship supports Native American communities

The Northern New Mexico Tribal Business Scholarship, a new educational funding source joining the LANL Foundation's suite of scholarships, was established to help Native American communities enhance their business and economic development opportunities and meet the growing tribal needs for qualified accountants, financial analysts and business system professionals.

Scholarship applications are due August 1. Applicants must be a member of a Pueblo or Tribe and reside in one of the following seven counties: Los Alamos, Mora, Rio Arriba, San Miguel, Sandoval, Santa Fe and Taos.

For further details and application requirements, visit the [2014 Northern New Mexico Tribal Business Scholarship](#) website.

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