



Argonne's
Architect
Ratindra
Das

Page 2

Research Highlights . . .

DOE Pulse highlights work being done at the Department of Energy's national laboratories. DOE's laboratories house world-class facilities where more than 30,000 scientists and engineers perform cutting-edge research spanning DOE's science, energy, national security and environmental quality missions. *DOE Pulse* (www.ornl.gov/news/pulse/) is distributed every two weeks. For more information, please contact Jeff Sherwood (jeff.sherwood@hq.doe.gov, 202-586-5806).



Science and Technology Highlights from the DOE National Laboratories

Number 142

September 29, 2003

JASPER milestone reached

DOE's Lawrence Livermore National Laboratory achieved a major milestone recently by successfully executing the first plutonium experiment using the JASPER gas gun at the Nevada Test Site. Livermore scientists used the 100-foot (Joint Actinide Shock Physics Experimental Research) gas gun to fire a projectile at more than five kilometers per second at a plutonium target. The data collected on the high pressures, temperatures and strain rates in the plutonium caused by the impact are used by researchers in the National Nuclear Security Administration's Stockpile Stewardship program to maintain the safety and reliability of the nation's nuclear weapons stockpile.

[David Schwoegler, 925/422-6900;
schwoegler1@llnl.gov]

Innovative shuttle bus capturing attention

A modernized version of the traditional Yellowstone National Park tour bus has been developed as a low-emission, cost-effective community/transit shuttle bus of the future. DOE's Idaho National Engineering and Environmental Laboratory is working with automotive industry leaders, the U.S. Department of Transportation's Federal Transit Administration, the National Park Service and private industry in developing the "new" yellow bus. While this modernized version of the traditional yellow bus retains the conventional feel of the older model park vehicles, the new version is a 16- to 32- passenger vehicle that uses alternative fuel, features a low floor and complies with the Americans with Disabilities Act.

[Teri Ehresman, 208/526-7785,
ehr@inel.gov]

Spray-on coating detects and removes radioactive contaminants

Researchers at DOE's Los Alamos National Laboratory have developed a paint-like material for mitigating radiological dispersal device incidents. Called Sensorcoat, the material is sprayed on contaminated surfaces, left to dry and then peeled off, carrying the radiological contaminants along with it. As the water-soluble spray immobilizes any radioactive particulates, it also detects specific areas contaminated by uranium and plutonium by changing colors. The color alert feature can also be adapted for detecting other similar radioactive materials. Sensorcoat was originally developed for decontamination work within the Department of Energy complex and has been used on highly contaminated glove boxes at the Laboratory.

[Todd A. Hanson, 505/665-2085;
tahanson@lanl.gov]

New findings in study of breast cancer

A potential new opportunity for the treatment of breast cancer has been identified in a study by researchers with DOE's Lawrence Berkeley National Laboratory. The study, which involved special lines of human breast cells, provides important new insight into the relationship between a tumor-suppressing protein called "p53," and telomeres, the structures that protect the ends of chromosomes and enable tumor cells to grow and divide indefinitely. Biologists Martha Stampfer and Paul Yaswen have shown that p53, which is retained in most breast tumors but rarely in other cancers, can slow or even stop cancer development in its early phase.

[Lynn Yarris, 510/486-5375;
lyarris@lbl.gov]

Sandia, Los Alamos, New Mexico Tech team on 'energetic materials' research

Researchers from DOE's Sandia and Los Alamos national laboratories and the New Mexico Institute of Mining and Technology have joined to create the Center for Energetic Materials and Energetic Devices (CEMED).

Initial projects CEMED is pursuing include developing energetic devices to help fight wild fires for the forest service and experimental tests to determine blast pressure and validate simulation models of building demolitions.

While researchers in the technical security community often call them "energetic materials and devices," the public knows them as explosives and bombs. By any name, though, as the nation remains under the threat of terrorist attack, there is a growing urgency to develop advanced capabilities to identify, evaluate, test and disarm such devices.

At the same time, there has been a decline in recent years in research into the science of energetic materials and a corresponding decrease in development of new energetic devices for both peaceful and military applications.

The three CEMED partners are establishing the Center to address the immediate terrorist threat as well as the longer-term need to revitalize the nation's energetic materials R&D activities. And each CEMED partner brings unique capabilities to the partnership.

Sandia has for more than 50 years had as one of its core missions the design and production of advanced energetic devices and subsystems. CEMED projects will offer Sandia and its Regional Alliance for Manufacturing Program (RAMP) partners a chance to stretch their manufacturing capabilities on high-consequence/low-volume systems and assemblies.

Los Alamos brings to the new partnership a long history of developing and characterizing new energetic materials under normal and extreme conditions using sophisticated experimental diagnostics and accurate materials and test fabrication facilities.

And New Mexico Tech is the only U.S. university to offer degrees in explosives engineering; it conducts research and testing related to energetic materials and explosives for industry and government agencies.

Customers for CEMED will include a broad range of federal and state agencies with an interest in energetic materials and devices. Additionally, the Center will be a resource for U.S. companies that develop, use, and manufacture energetic materials and devices, including transportation, mining, oil and gas, automotive, and munitions manufacturers.

Submitted by Sandia National Laboratories

WATERCOLOR AWARD IS LIKE 'WINNING WIMBLEDON'

Ratindra Das, an architect and project manager at DOE's Argonne National Laboratory, has been given an award at the American Watercolor Society's annual exhibit in New York.

Das won the award for his painting "Janitxio," which depicts a small island and a fishing village on Lake Pascuaro in Mexico that attracts tourists. The work was selected from more than 2,000 entries as one of 15 singled out for awards.

"For a painter to win an award from the AWS is like a tennis player winning Wimbledon."

Das has been painting since the 1980s when he was introduced to the fall colors in Door County, Wisc., a popular Midwestern vacation spot. Currently, Das divides his vacation time between painting and teaching painting.

"I am not a habitual painter," said Das. "As a result I don't have any fixed time to paint or fixed goal for production. But when the juices are flowing I can work for 12 to 16 hours at a time."

In 1999, Das' work was selected for the annual AWS New York exhibit and judged to be among the show's top 10, making him a signature member of the society and allowing him to add the AWS initials to his name.

Das is a signature member of six other watercolor societies and has received more than 60 awards in national shows, but nothing means more to him than winning an award from AWS.

Das' work has also been featured in the Argonne director's annual holiday greeting card and is on display in several museums nationwide.



Argonne architect Ratindra Das shows some samples of his watercolors to Gwendolyn Morrison, director of Argonne's Plant and Facility Services Division.

Submitted by Argonne National Laboratory