Pacific Northwest National Laboratory
Operated by Battelle for the U.S. Department of Energy

Sharing THE Excitement OF Science AND Technology

Breakthroughs for the Northwest

Richland, Washington

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PNNL co-leads hydrogen storage center

Pacific Northwest National Laboratory, along with Los Alamos National Laboratory in New Mexico, will lead a new U.S. Department of Energy national Center for Chemical Hydrogen Storage. The center is a step toward a "hydrogen economy"—an economy based not on the fossil fuels used today, but on clean, abundant hydrogen fuels.

Hydrogen powered vehicles would reduce both pollution and the need for foreign oil. However, researchers must find a way for vehicles to carry enough hydrogen to fuel a 300-mile trip. The center will look at options such as metal hydrides, hydrogen stored in carbon materials and chemical storage to meet the goal of designing a cost-effective, energy efficient hydrogen storage system that also will be able to regenerate hydrogen.

The center is part of a $150 million National Hydrogen Storage Project funded by DOE. For more information, see **http://www.pnl.gov/news/2004/04-33.htm**.

In this issue

Seattle institute partners with PNNL

In a step that will further elevate the Pacific Northwest's profile in the emerging science of systems biology, the Pacific Northwest National Laboratory and the Institute for Systems Biology have established a partnership to focus on expanding and strengthening their technical capabilities in systems biology and related areas.

The goals of the partnership include building the infrastructure to solve complex biological problems faster, refining the tools to measure and predict complex cell behavior, and strengthening existing research and development. Current collaborations include computational approaches to predicting protein structure.

The Institute for Systems Biology is an internationally renowned non-profit research institute dedicated to the study and application of systems biology. ISB's goal is to unravel the mysteries of human biology and identify strategies for predicting and preventing diseases such as cancer, diabetes and AIDS.

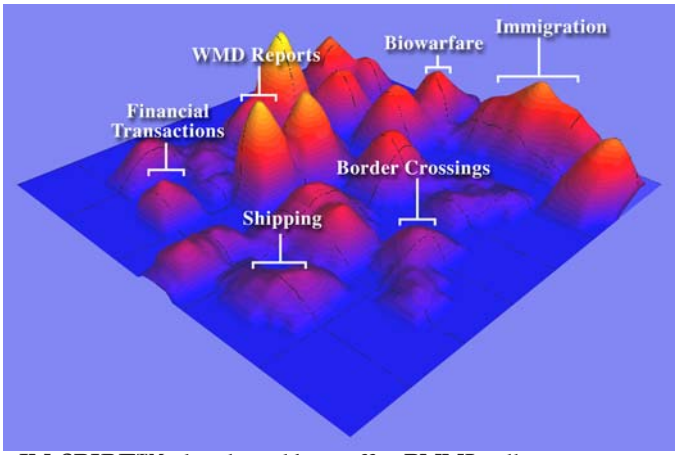
For more about the partnership, see **http://www.systemsbiology.org/extra/PressRelease_042604.html**.

Gov. Locke opens new Battelle/PNNL research center in Seattle

Washington Governor Gary Locke helped Battelle and Pacific Northwest National Laboratory celebrate the opening of the new Battelle Seattle Research Center at South Lake Union in Seattle recently.

The building houses about 140 scientists, engineers and staff engaged in public health, human factors, transportation, coastal resources, homeland security and environmental research. It also is home to the Pacific Northwest Center for Global Security, a nationally recognized center for non-proliferation research. Battelle and PNNL clients include the Centers for Disease Control and Prevention; the U.S. Departments of Energy, Homeland Security, and Transportation; King County; Portland General Electric; and Georgia Pacific.

National Visual Analytics Center led by PNNL



IN-SPIRE™, developed by staff at PNNL, allows users to quickly and easily discover trends, key issues and hidden information relationships in large volumes of text.

Pacific Northwest National Laboratory will lead a new center created to increase the U.S. Department of Homeland Security's capabilities to discover and predict terrorist activities. The National Visual Analytics Center will provide scientific guidance for the research and development of new tools to manage, visually represent and analyze enormous amounts of diverse data.

The center will focus on high priority research projects – all related to the analysis of large, dynamic and complex information streams that consist of structured and unstructured text documents, measurements, images and video data. NVAC is not a data gathering program, but will instead develop the tools to evaluate in new ways information currently used by counterterrorism analysts. For more information about NVAC, see **http://www.pnl.gov/news/2004/04-35.htm**.

PNNL on fast track for hydrogen fuel reformer

Researchers at Pacific Northwest National Laboratory are developing a system to rapidly produce hydrogen from the gasoline in your car, bringing fuel cell-powered cars one step closer to the mass market.

Fuel cells use hydrogen to produce electricity, which runs the vehicle. Fuel cell-powered vehicles get about twice the fuel efficiency of today's cars and significantly reduce emissions. But how do you "gas up" a hydrogen car? One approach uses steam reforming to convert gasoline onboard a vehicle, but this approach requires a 15-minute wait before driving.

The U.S. Department of Energy established a goal of 30 seconds for cold start. Using their expertise in microtechnology, PNNL engineers developed a compact steam reformer, which can produce large amounts of hydrogen-rich gas from a liquid fuel in only 12 seconds.

For more information on this research, see **http://www.pnl.gov/news/2004/04-31.htm**.

Laboratory wins three R&D 100 awards, shares a fourth

Pacific Northwest National Laboratory has been honored with three R&D 100 Awards for 2004, while four additional PNNL researchers share an R&D 100 Award with Battelle for their work on a Battelle-funded project. The awards for the Millimeter Wave Holographic Body Scanner for Custom Fitting; BSP3 Polymer; Single-Chain Antibody Library; and D^3: Degradable by Design Deicer represent the world's 100 most important scientific and technical innovations, according to R&D Magazine.

R&D 100 Awards honor the most promising new products, processes, materials or software developed throughout the world and put on the market the previous year. Awards are based on each achievement's technical significance, uniqueness and usefulness.

For more information about these technologies, see **http://www.pnl.gov/news/2004/04-45.htm**.

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