



**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

August 2002

New Northwest institute focuses on bio-based energy and products

Four major Northwest research organizations are bringing together industry, processors, growers, universities and federal laboratories to develop new methods for converting agricultural and food processing residue and wastes into commercially valuable "bio-based" energy and industrial products.

Members of the new Northwest Bioproducts Research Institute include Pacific Northwest National Laboratory, Idaho National Engineering and Environmental Laboratory, Washington State University and University of Idaho.

Under terms of the agreement the participating universities and federal research laboratories will collaborate to form a nationally renowned, multi-disciplinary research and development program. They will examine and develop methods for converting agricultural and food processing residue and wastes into bio-based fuels, power and industrial products, such as chemicals for plastics, solvents and fibers. Industry, processors and growers will be able to use and profit from the institute's products and technologies and may profit from licensing the discoveries. For more information see www.pnl.gov/biobased/.

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APEL promotes new business development

The Applied Process Engineering Laboratory (APEL) received a perfect score from Washington State's Department of Ecology during the annual dangerous waste compliance inspection in June, allowing APEL to operate as a tech business startup center able to manage dangerous waste.

The APEL facility includes engineering and manufacturing space, wet labs, biology labs and electronic laboratories. Located in Richland, Wash., APEL is supported and sponsored by major institutions in the Tri-Cities, including Battelle and Pacific Northwest National Laboratory, Port of Benton, the U.S. Department of Energy, Energy Northwest, Washington State University, the City of Richland and Tri-Cities Industrial Development Council.

APEL houses new business startups, companies developing new products, entrepreneurs, university and national laboratory research staff and vendors demonstrating new technologies. Opportunities for collaboration are plentiful. An open user facility, one of APEL's primary purposes is to promote development of new businesses and product lines leading to new jobs in the local communities. To learn more about APEL see www.apel.org/.

Sharing science...

Pacific Northwest National Laboratory is sharing the excitement of science by making videos of its Science & Technology Seminar Series available to public broadcast stations in Seattle, Portland, Olympia, Spokane, Yakima and Tri-Cities.

"Big Possibilities from Tiny Technologies," a presentation on nanotechnology given by PNNL's Paul Burrows, is scheduled to air on eight regional stations in August and September. The presentation discusses the many possibilities of nanoscience. "The ability to precisely combine and manipulate single atoms and molecules presents tremendous opportunities to address a wide range of society's critical challenges," Burrows says.

A schedule of air times is available at www.pnl.gov/speak/seminar/video.html. For more information about the video, contact Mindy Strong at 509-375-2599 or mindy.strong@pnl.gov.

Keeping mail safe in the 21st century

The U.S. State Department and Diplomatic Security Service are offering a mail-handling course to foreign countries through Pacific Northwest National Laboratory.

The course, Postal Chemical/Biological Incident Management, is part of the State Department's Anti-Terrorism Assistance program and has three purposes: to spread goodwill by helping foreign countries combat terrorism, to prevent the spread of bioterrorism attacks to the U.S. and to protect U.S. diplomats abroad.

The course is aimed at people who might be the first to come into contact with biological or chemical contaminants sent through the mail or the consequences of such attacks. These include postal service workers, the public health community and first responders. Topics for the four-day class include how to identify credible threats and steps to take if the threat is deemed credible.

More than 50 trainings are scheduled over the next two years in South America, Southeast Asia, Eastern Europe, the Middle East, Africa and Europe. For more information see www.pnl.gov/breakthroughs/sum02/mission2.html#mail



PNNL to receive \$10.6 million for protein studies

Pacific Northwest National Laboratory will receive \$10.6 million from the U.S. Department of Energy over the next three years to develop next generation tools to analyze the network of protein complexes within cells.

Through a \$23.4 million proposal to the DOE's Genomes to Life program led by Oak Ridge National Laboratory, ORNL, PNNL and four other institutions will develop novel technologies that examine live cells and isolate, identify and characterize groups of proteins, called protein complexes, within microbial cells. These new tools will be used to analyze protein function from a global perspective known as systems biology.

Scientists will apply the new techniques to investigate protein complexes in two specific microbes: *Shewanella oneidensis*, known for its ability to transform metals and toxic materials into harmless forms; and *Rhodospseudomonis palustris*, which absorbs carbon dioxide from the atmosphere and converts it into biomass. This research will help scientists solve problems in energy production, environmental cleanup and carbon cycling.

For more information see www.pnl.gov/news/2002/02-21.htm.

Applying risk assessment to health care



Researchers at Pacific Northwest National Laboratory are using risk assessment tools from nuclear, aerospace and chemical industries to help local hospitals identify and evaluate situations that may affect patient safety.

Across the country and in Canada, accredited health care organizations, such as hospitals, clinical laboratories and behavioral health centers, are performing analyses and developing ways to prevent errors that could threaten patient safety. These groups and others seeking to maintain accreditation are responding to a recent standard from the Joint Commission on Accreditation of Healthcare Organizations (JCAHO).

At local hospitals, PNNL analysts are assessing existing processes related to patient safety issues, such as plans to prevent patient slips and falls, to see how well these plans are working and how they might be improved.

In another approach to patient safety, PNNL is applying powerful data mining and data visualization technologies to analyze data related to medication errors in a pilot study with U.S. Pharmacopia. For more information see www.pnl.gov/breakthroughs/sum02/update2.html.

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