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

Sharing the Excitement of Science

Breakthrough Science and Technology for the Northwest

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Students give businesses hands-on help

Business students at two Washington universities are trying their hand at market analyses, business planning and corporate structuring for potential start-up companies. While their activities may take place in the classroom, they're providing valuable assistance to real-life business ventures.

Undergraduate business students from Seattle University and students in the master's of business administration programs at Seattle University and Seattle Pacific University are supporting the high-tech start-up businesses that could evolve from Pacific Northwest National Laboratory technologies.

Through this innovative approach, emerging businesses receive assistance from highly trained and motivated students. At the same time, students have the opportunity to learn in real-time from real experiences. Their exposure to the intricacies of high-tech new business ventures also will help them prepare for annual business plan competitions.

Bringing innovative solutions to the electric power system

Building on its long history of work for utilities, state governments and federal agencies, Pacific Northwest National Laboratory is supporting regional and national efforts to address the challenges of the changing energy industry in areas such as transmission system reliability, load management and hydropower system operation and dispatch.

For an informative flier about how PNNL's qualified staff, analytical tools, specialized equipment and information can be applied to overcome the immediate energy crisis and address potential problems of the future, contact Pamela Harrington at 509-375-4506 or pamela.harrington@pnl.gov.

Global change research partnership formed

Pacific Northwest National Laboratory and the University of Maryland have joined forces to link the strengths of the national laboratories and the academic community to advance the understanding of global climate change. The Joint Global Change Research Institute, announced in March, will investigate the scientific, social and economic implications of climate change, both nationally and globally.

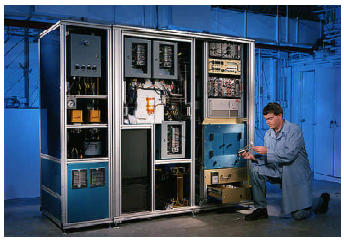
"We are looking forward to partnering with the university's first-class faculty and graduate students in economics, public policy, earth and environmental sciences, engineering and the social sciences," said Lura Powell, laboratory director. "Maryland has strong research interests close to our own, and an understanding of exactly the collaboration we had in mind."

The joint institute brings together about 25 PNNL climate change researchers now based in Washington, D.C., with top Maryland faculty and research scientists. Gerald Stokes, previously associate laboratory director for PNNL's fundamental science effort, leads the joint institute. "We are entering a whole new era in the way society deals with the climate, energy and the environment," he said. "This unique partnership between PNNL and Maryland recognizes and brings together the combined forces of research and scholarship that are required to find solutions for this new era."

Technologies recognized for moving from the lab to the marketplace

Researchers at Pacific Northwest National Laboratory were recognized by the Federal Laboratory Consortium for their efforts in commercializing laboratory-developed technologies. The FLC—comprised of more than 700 federal laboratories and research centers nationwide—honored PNNL with four "excellence in technology transfer" awards.

Multi-Blade Knife Failure Detector: A team of scientists and engineers headed by PNNL developed a technology to prevent undetected knife failures from significantly reducing the quality of products at food processing plants. The system, used at Lamb-Weston processing plants worldwide, detects knife failures within one second, triggering an alarm and signaling a blade replacement.



Radionuclide Detection Technologies: Two devices developed at PNNL to detect nuclear explosions currently are being deployed worldwide to verify international compliance with the Comprehensive Nuclear-Test-Ban Treaty. DME Corp., a safety and diagnostic equipment manufacturer in Orlando, Fla., is commercially producing and selling these units for use in a global explosion-monitoring network.

Environmental Molecular Sciences Laboratory Publisher Software: This word processing and presentation tool allows the same software to run on any computer platform. It enables users to collaborate easily on complex documents over the Internet without loss of format or readability. PNNL signed a license agreement with Flashline.com of Cleveland, Ohio, to sell EMSL Publisher on its web site (http://www.flashline.com/, search 'PNNL').

Yttrium-90 for Cancer Treatment: PNNL researchers developed an efficient method for retrieving the medical isotope yttrium-90 from purified strontium-90. Following the privatization of the process, the production, shipping and sales of the isotope have been transferred to Perkin Elmer/NEN Life Sciences in Boston, Mass.

BEADS bodes well in purifying samples for on-the-spot detectors

An automated system that purifies samples of soil, air and water that originally was created for use in a biological warfare detector is being enhanced to monitor health hazards on submarines. Scientists at Pacific Northwest National Laboratory created BEADS, which stands for Biodetection Enabling Analyte Delivery System, to clean and concentrate samples so that microorganisms in places such as food-processing and water treatment plants can be detected.

Conventional sample preparation requires a person to manually purify samples for identification. BEADS, however, takes the person out of the process using proprietary microfluidic systems and automated sample cleanup methods. BEADS can be used with existing chemical, protein, nucleic acid or whole-cell detectors. The project to enhance BEADS for monitoring on submarines is part of a Navy-sponsored program led by the New Mexico Institute of Mining and Technology.

Growth in research and development predicted

According to the *R&D Technology Forecast*, growth in research and development spending will continue at a moderate pace. Every year, Battelle, which operates Pacific Northwest National Laboratory, and *R&D Magazine* jointly issue the *R&D Technology Forecast*. The 2001 edition predicts that even in today's economic slowdown, the total industry, government and academic expenditures in research and development in the United States will increase to just over $277.5 billion in 2001. This is approximately 5.1 percent above estimates of R&D spending in 2000. For a copy of the forecast, which includes research and development highlights, areas of growth, funding sources and trends, contact Pamela Harrington, 509-375-4506 or pamela.harrington@pnl.gov.

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