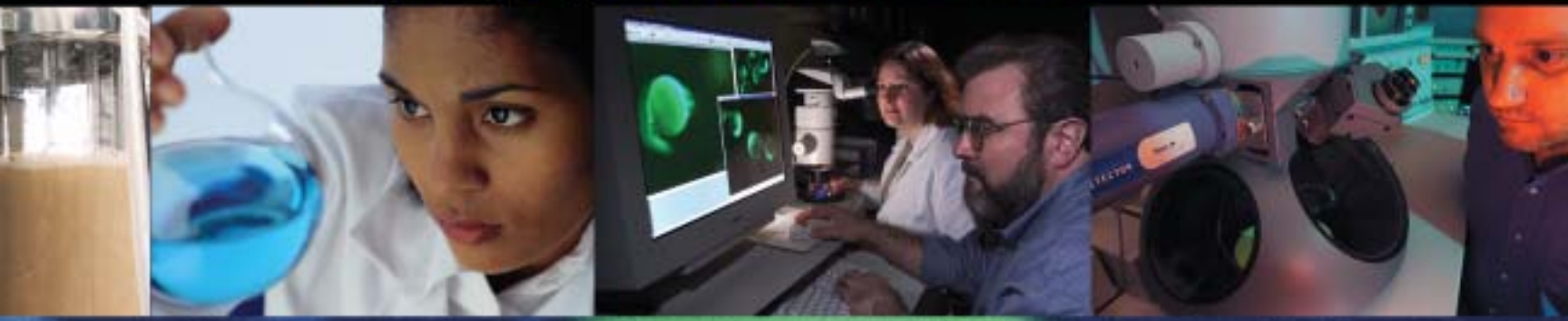
ADVANCED MATERIALS *Complex Biological Systems* ENERGY HIGH-PERFORMANCE COMPUTING NATIONAL SECURITY Neutron Science



OAK RIDGE NATIONAL LABORATORY

MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

Foreword

Jeff Wadsworth, ORNL Director

Oak Ridge National Laboratory's future could not be more exciting. Not since the days of the Manhattan Project has the laboratory witnessed anything approaching the scale of what is taking place today in Oak Ridge. Just outside my window we have opened a new 300,000 sq ft facility that will house one of the world's largest supercomputers. Down the street, we have a new Center for Functional Genomics where scientists will push the frontiers of genetics research in a pathogen-free environment. Next door, a new home for the world's most powerful electron microscope will help sustain our leadership in advanced materials research.

Up on Chestnut Ridge, work is underway on the nation's first Center for Nanophase Materials Science. The facility is adjacent to the world's largest civilian science project, the $1.4 billion Spallation Neutron Source, now more than two-thirds complete and on time for completion in 2006. Meanwhile, we are partnering with the University of Tennessee on the design and construction for two state-funded facilities, the Joint Institute for Computational Sciences and the Joint Institute for Biological Sciences.

The significance of these and other new buildings and programs is difficult to overstate. Their presence is visual evidence that we are sustaining Oak Ridge's future. This future is built upon a history and legacy of which we are very proud—science and technology solutions for America's most difficult problems. As modern facilities make possible cutting-edge research, ORNL is witnessing a refocusing of the laboratory's mission for the next generation of great science.

I hope this brochure conveys a sense of the enthusiasm we are experiencing at Oak Ridge National Laboratory. For the 4,000 staff at ORNL, being part of this history, and part of this future, is an exciting opportunity.

Building on a History of Science and Service

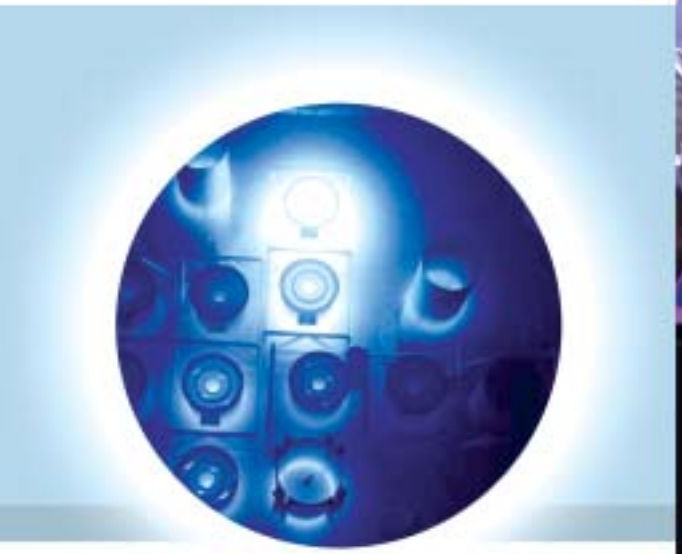
Born as part of the Manhattan Project in 1943, Oak Ridge National Laboratory was established in the dark days of World War II when American scientists feared that Germany was rapidly developing a new weapon of unimaginable power. Built seemingly overnight on isolated farm land in the mountains of East Tennessee, Oak Ridge became the "secret city" that within two years housed more than 75,000 residents. Working under assumed names in the Graphite Reactor, Enrico Fermi and his colleagues developed the world's first sustained nuclear reaction, leading to the atomic bomb that ended the war.

ORNL's involvement with nuclear weapons ended after the war. The laboratory's scientific expertise shifted in the 1950s and 1960s to peacetime research in medicine, biology, materials and physics. The Graphite Reactor evolved from a wartime role to produce the world's first medical radioisotopes for treating cancer. Following the creation of the Department of Energy in 1977, ORNL's mission broadened to include research in energy production, transmission and consumption. The end of the Cold War and the growth of international terrorism led to a further expansion of research into a range of national security technologies. As the laboratory entered the 21st Century, new cross-disciplinary programs in nanophase materials, computational sciences and biology led to the term "nano-info-bio" to describe the emerging synthesis in ORNL's research agenda.

As ORNL's missions have changed over the years to meet the nation's priorities and needs, the laboratory's underpinning standards in science and public service have remained. At a recent celebration of ORNL's 60th anniversary, a number of the laboratory's original staff returned to join their successors at the Graphite Reactor. Together, they paid tribute to those who built one of the world's great centers of research. As heirs to a great history, they also recommitted a new generation to the cause of scientific exploration in the service of humankind.

Meeting the Challenge

We've never been afraid of the big challenges. Focusing on six broad scientific areas, our goal is to develop technologies that will enrich and protect humankind.



Neutron Science

Leading the World

The Spallation Neutron Source, when combined with the High Flux Isotope Reactor, will make Oak Ridge the world's foremost center for neutron science.
robertojb@ornl.gov

Biological Systems

Protecting Our Environment

From acid rain and global warming to the study of DNA, Oak Ridge research seeks ways of accommodating abundant energy with a safe environment.
hildebrandsg@ornl.gov

Energy

Securing Energy Independence

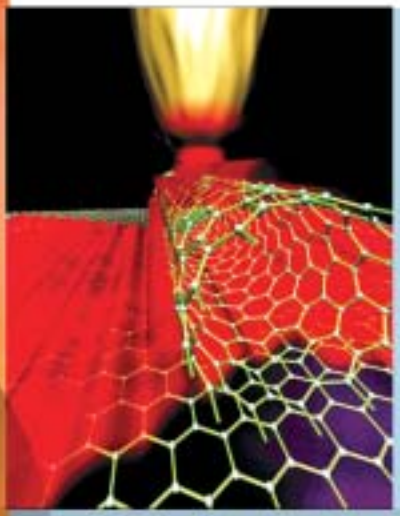
From safer nuclear power to more efficient home appliances, Oak Ridge research is contributing to the goal of increasing energy production, improving energy transmission and reducing consumption.
gillilandrg@ornl.gov

National Security

Safeguarding Our Communities

Advanced biochemical sensors are among the discoveries that make cutting-edge technologies at Oak Ridge an increasingly important part of the effort to strengthen America's security.

akersfhjr@ornl.gov



High Performance Computing

Providing the Foundation of Discovery

With current machines that can perform six trillion calculations per second, Oak Ridge is moving toward the ability to perform more than 100 trillion calculations per second.

zachariat@ornl.gov

Advanced Materials

Strengthening American Industry

The new Advanced Materials Characterization Laboratory, combined with the new Center for Nanophase Materials Sciences, will add to an Oak Ridge inventory that includes one of the nation's strongest and broadest materials science programs.

bloomee@ornl.gov

"Technology enables us to see what has always been true but hitherto hidden."

World Class Research

Funded by a unique combination of federal, state and private funds, a new east campus provides state-of-the-art labs for high-performance computing and engineering technology. A state-funded Joint Institute for Computational Sciences will provide facilities for computational sciences research and also house the Laboratory's "think tank"—the Oak Ridge Center for Advanced Studies. The federally funded Research Support Center will complement the Laboratory's research facilities with a new cafeteria, visitor center and conference space.

ORNL's famous mutant mouse colony is now housed in the new William L. and Liane B. Russell Genomics Research Laboratory, named for the pioneering geneticists.

In World Class Facilities

The Spallation Neutron Source, combined with the upgraded High Flux Isotope Reactor, will make ORNL the world's center for neutron science. The SNS site will also feature the new Center for Nanophase Materials Sciences and the state-funded Joint Institute for Biological Sciences.

The Advanced Materials Characterization Laboratory, built specially to house the world's highest resolution microscope (0.7Å), will help sustain ORNL's leading role in advanced materials research.

AWARD–WINN

NOBEL PRIZES

Eugene Wigner and Clifford Shull

Shortly after World War II, ORNL researchers Ernest Wollan and Clifford Shull reported to Research Director Eugene Wigner, a Nobel laureate physicist, that they had seen interesting effects with neutrons produced by ORNL's Graphite Reactor. Shull later received the Nobel prize. In 1999, he attended the groundbreaking for the Spallation Neutron Source, a world-class neutron facility that evolved from Wollan and Shull's discoveries at ORNL.

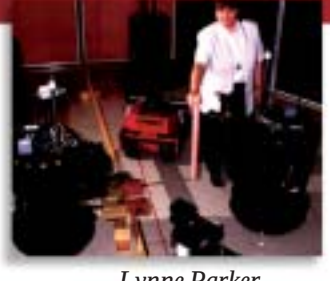
FERMI AWARDS

Liane and Bill Russell

The Fermi Award is one of the nation's most prestigious scientific honors. Among ORNL's seven Enrico Fermi Award recipients are ORNL Director Emeritus Alvin Weinberg and mammalian geneticists Bill and Liane Russell.

NING SCIENCE

PECASE AWARDS



Lynne Parker

The Presidential Early Career Award for Scientists and Engineers recognizes the nation's outstanding young researchers. ORNL's researchers have received 10 PECASE awards, including three of the four awards received by Department of Energy laboratories in 2002.

R&D 100 AWARDS

Tuan Vo-Dinh and Michael Ramsey

Sometimes called the "Oscars" of scientific research, R&D 100 awards are given annually to scientists and engineers on the cutting edge of technological innovation. Oak Ridge National Laboratory ranks first among Department of Energy laboratories and number two among all laboratories in the number of R&D 100 awards.

A Valued Member of the Community

UT-Battelle provides more than $1.25 million annually in support of math and science education, economic development and corporate volunteerism in the greater Oak Ridge region.

Science Education

UT-Battelle is the premier supporter of science and math education in East Tennessee. Corporate support for new high school science laboratories, math and science scholarships, science competitions and the UT Academy for Math and Science are a part of efforts to support the Department of Energy's science education mission.

Corporate Volunteerism

Working through Team UT-Battelle, ORNL employees have donated thousands of hours to civic and charity projects in the Oak Ridge region. Volunteer projects have included Habitat for Humanity, Juvenile Diabetes, the Red Cross and donations totaling more than $800,000 to the 2003 United Way Campaign.

Economic Development

UT-Battelle is committed to being an active partner in the region's economic development. Working with the $150 million Battelle Ventures program, ORNL's Office of Technology Transfer is dedicated to starting new technology-based companies using intellectual property developed in the laboratory. For universities and existing industries, the laboratory's 20 user facilities make high-tech tools available for testing and research. fischerar@ornl.gov

University Partners

With an eye toward developing the next generation of scientists and engineers, UT-Battelle has established partnerships with major southeastern research universities to facilitate joint appointments, collaborative research and graduate student opportunities.

University of Tennessee
Virginia Tech
Virginia
Georgia Tech
North Carolina State
Duke
Florida State
Oak Ridge Associated Universities

At a Glance: ORNL . . .

...Is the Department of Energy's largest science and energy laboratory, managed since April 2000 by a partnership of the University of Tennessee and Battelle.

...Has 3,800 staff, 3,000 guest researchers, 20 user facilities and a budget of approximately $1 billion.

...Supports the Department of Energy's mission through six major scientific competencies in energy, neutron science, high-performance computing, complex biological systems, materials research and national security.

...Is located in Eastern Tennessee on the Oak Ridge Reservation in Anderson and Roane counties. The laboratory is near Interstates 40 and 75 and is 20 miles from Knoxville's McGhee-Tyson Airport.

...Welcomes visitors to the laboratory. Because of increased security requirements, visits must be arranged ahead of time. Contact ORNL Visitor Services (865) 574-7199, or email x10visit@ornl.gov, for information about how to arrange a visit to ORNL.

...Provides additional information at *www.ornl.gov*.

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