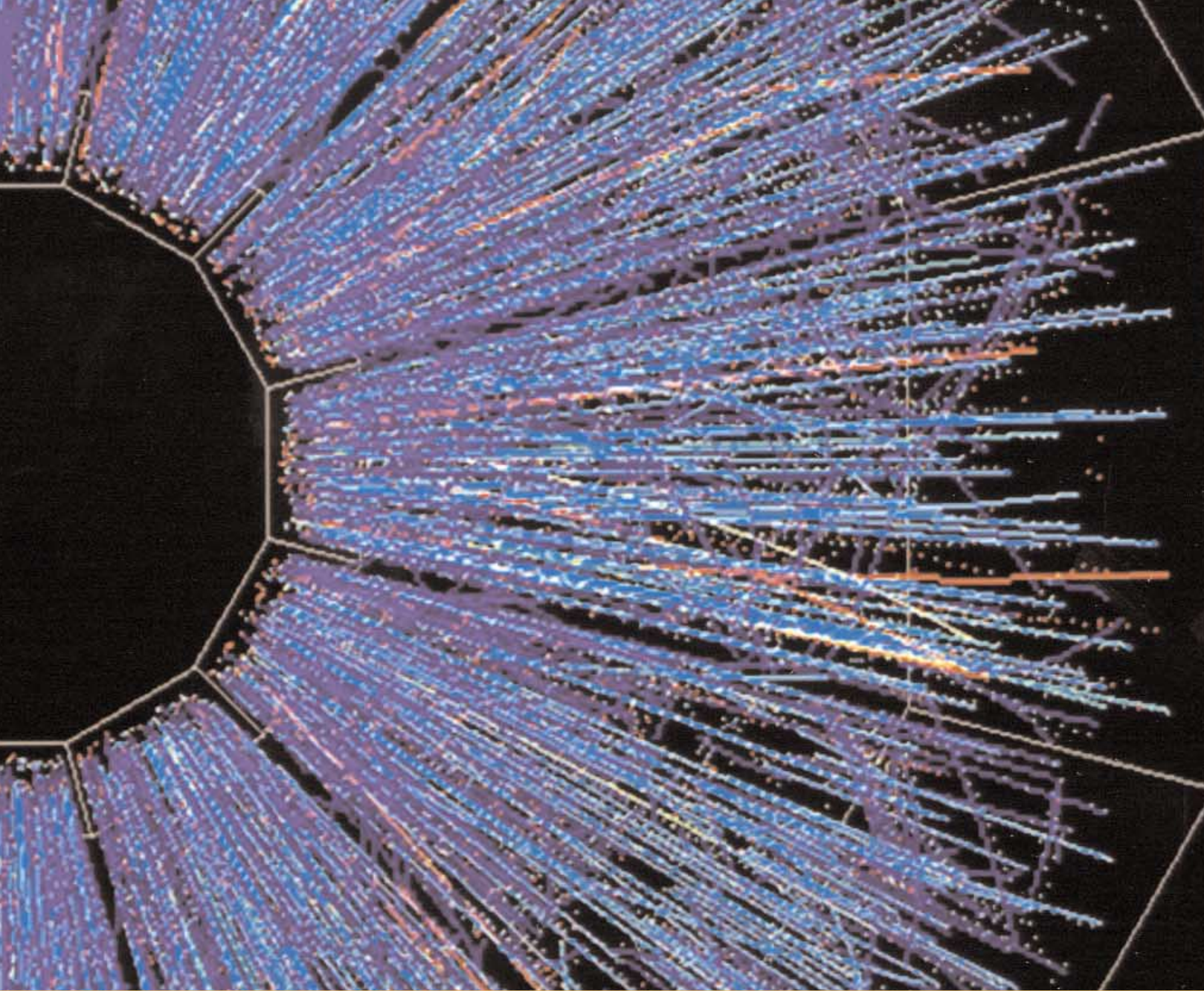


In its management and operations role for the U.S. Department of Energy's national laboratories, Battelle oversees some of the world's leading science machines. These machines are among the biggest and best in the world.

Stewards of Some of the World's



At left is the end view of a collision between two 30-billion electronvolt gold beams in the STAR detector at the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory. The beams travel in opposite directions at nearly the speed of light before colliding. (Photo courtesy of Brookhaven National Laboratory/RHIC-STAR.)

Greatest Science Machines

At DOE's NATIONAL LABORATORIES,

Battelle serves as a Steward of some the World's Foremost Science Machines.

The highly sophisticated instruments at DOE's national laboratories are not only helping greatly expand scientific knowledge, they also serve as the foundation for the types of national and global problem-

solving described in earlier sections of this Annual Report—in areas such as energy, the environment, and national security. These great scientific instruments are run by some of the world's best and brightest scientists at Brookhaven National Laboratory, Oak Ridge National Laboratory, the National Renewable Energy Laboratory, and Pacific Northwest National Laboratory.

Courtesy ORNL

The High Flux Isotope Reactor at Oak Ridge National Laboratory recently underwent a major upgrade. This facility is the only one of its kind in the DOE system. This is a photo of spent fuel elements stored underwater.

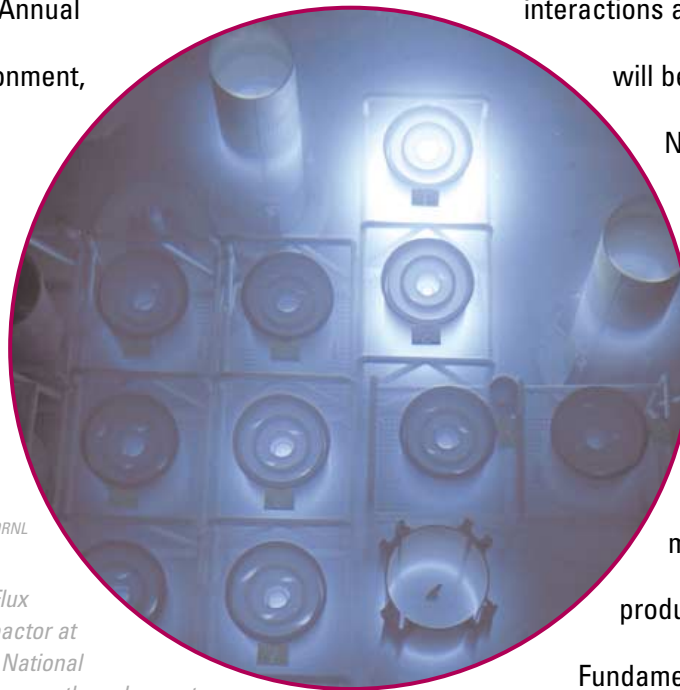
Exciting opportunities are arising from "big science" projects at the national laboratories where Battelle serves DOE.

Neutron science, or the way we understand static and dynamic interactions among complicated structures of materials,

will be advanced by the new \$1.4 billion Spallation Neutron Source (SNS) and the upgraded High Flux Isotope Reactor at Oak Ridge National Laboratory. Benefits of this research will include advancements in new materials, improved materials for high-temperature superconductors, powerful lightweight magnets, and lighter yet stronger plastic products.

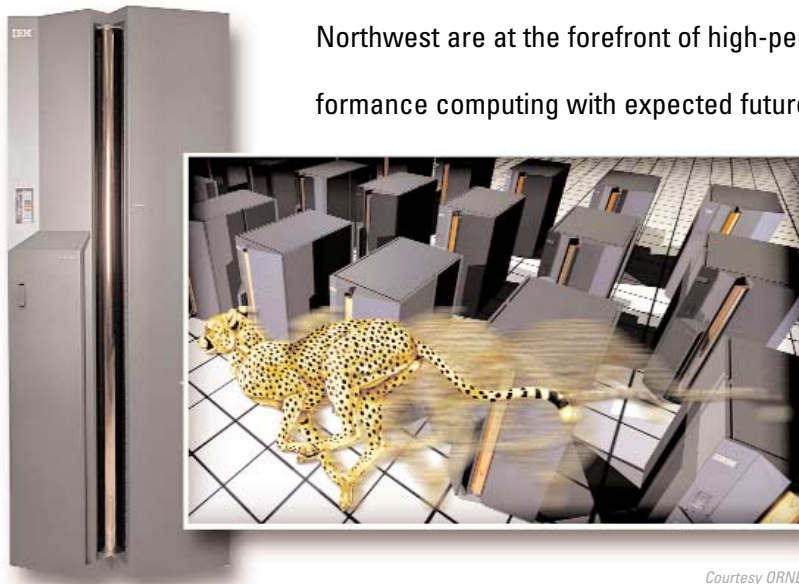
Fundamental quark physics, or the understanding of

the basic building blocks of matter, is being moved forward by the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National



Laboratory. RHIC is the world's newest and biggest particle accelerator for nuclear physics. It has enormous potential in the field of understanding matter, and the knowledge gained in this research could have long-term benefits in such areas as materials, computers, energy, and electronics.

High-performance computing utilizes terascale computers and increasingly sophisticated algorithms to examine extremely complex systems like climate change and protein structure. National laboratories such as Oak Ridge and Pacific Northwest are at the forefront of high-performance computing with expected future



Courtesy ORNL

The leading-edge, terascale computing facility at Oak Ridge National Laboratory, dubbed Cheetah because of its lightning

speed, is a global science leader. The terascale facility can perform four trillion calculations per second.



Courtesy BNL

Nicholas Samios, a senior physicist at Brookhaven National Laboratory and former lab director, was named the 2001 recipient of the internationally prestigious Bruno Pontecorvo Prize for research. The prize honors "the most significant investigations in elementary particle physics."

benefits in such areas as energy and global environmental change. Pacific Northwest also greeted the arrival of the new 900 MHz wide-bore nuclear magnetic resonance magnet. It promises to be among the world's largest and most stable magnet system for chemical, biological and materials research.

Nanoscale science and technology advancements will enable the national laboratories and major universities to synthesize new materials, understand unique properties brought about by the nanoscale, and use sophisticated tools to analyze these properties and develop new applications. Expected benefits include improvements in manufacturing, product development, medicine, and drug delivery.

Battelle is working hard to integrate the strengths of these "big science" initiatives to bring high-impact, cost-efficient breakthroughs to DOE and the nation.