

Oak Ridge National Laboratory: Opportunities for Partnership

Presented at:
ORNL Veteran-Owned Small Business
Day Forum

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“All I’m saying is, now is the time to develop the technology to deflect an asteroid.”

ORNL is DOE's largest multipurpose science and energy laboratory



- **\$1.04 billion budget**
- **3,900 employees**
- **3,000 research guests annually**
- **Nation's largest unclassified scientific computing facility**
- **Nation's largest science facility: the \$1.4 billion Spallation Neutron Source**
- **Nation's largest concentration of open source materials research**
- **Nation's broadest energy programs**
- **\$300 million modernization in progress**

ORNL's economic impact

Wages: \$274 million

Procurement: \$370 million

United Way contributions: \$836,318

Medical services: \$35 million

Air travel through McGhee Tyson: 30% of commercial tickets

Tennessee taxes: \$9 million

Economic development: \$500,000 per year

Our plans for the next five years create opportunities for business

- **World's foremost center for neutron scattering**
- **World leadership in computational science and engineering**
- **Sustained world leadership in materials science at the nanoscale**
- **Leadership in systems biology**
- **Transformational energy technologies**
- **Science and technology for national and homeland security**
- **Continuing modernization of our facilities and infrastructure**

Our world-class capabilities for nanoscale R&D are coming on line

Spallation Neutron Source:

- Nation's largest science project
- On schedule, on budget, on scope — 93% complete



High Flux Isotope Reactor:

- Nation's leading research reactor
- World-class instruments installed



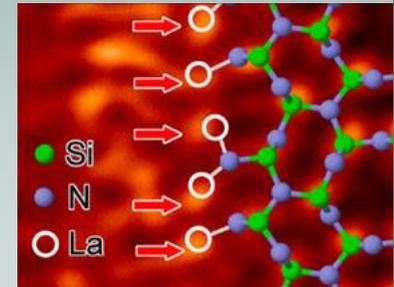
Center for Nanophase Materials Sciences

- First of five DOE-sponsored centers
- 75 user projects already under way



Ultrahigh-resolution microscopy

- New aberration-corrected electron microscope
- New Advanced Microscopy Laboratory
- New world record resolution: 0.6 Å



The Spallation Neutron Source

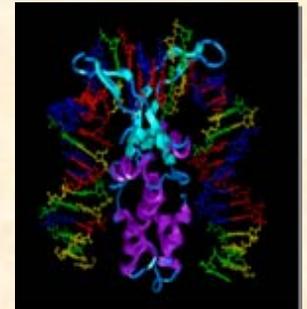
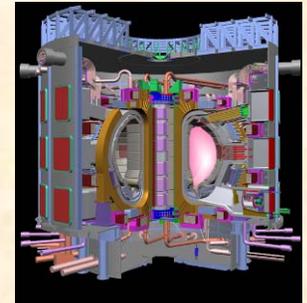
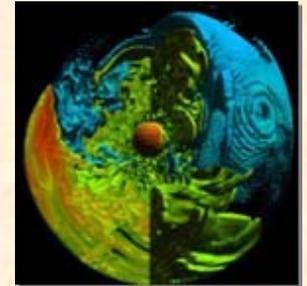
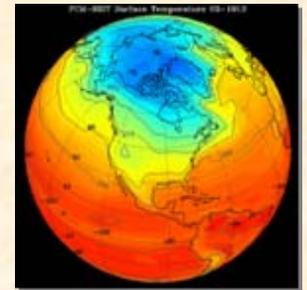
Total cost: \$1.4 billion

- **Operational in 2006**
- **World's most powerful pulsed neutron source**
- **With complementary resources at the High Flux Isotope Reactor, Oak Ridge will lead the world in neutron scattering**



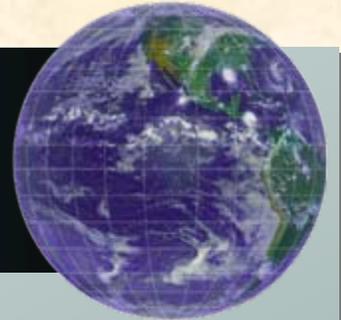
We are at the forefront in computing and simulation

- **Leading the partnership to develop the National Leadership Computing Facility**
 - Leadership-class scientific computing capability
 - 100 teraflops by 2006; 250 teraflops by 2007
- **Attacking key computational challenges**
 - Climate change
 - Nuclear astrophysics
 - Fusion
 - Materials sciences
 - Biology
- **Providing access to our computational resources through high-speed networking**



We are attacking grand challenges in systems biology

Challenge: Integrate biology and ecology based on the foundation of understanding molecular-level interactions



- **Identify the composition and function of “molecular machines”**
- **Use biological processes to**
 - Produce clean energy
 - Sequester carbon
 - Help clean up the environment
- **Understand how living organisms react to their environments**
- **Determine the genetic basis for complex traits**



We address the energy challenges of the present . . . and the future

Generation	Distribution	Consumption
<p data-bbox="205 378 515 654">Fossil Fission Renewables Fusion</p> 	<p data-bbox="738 378 1182 696">Transmission technology Hydrogen Distributed energy resources</p> 	<p data-bbox="1367 378 1744 582">Buildings Industry Transportation</p> 

Supporting DOE's strategic goals for energy security and independence

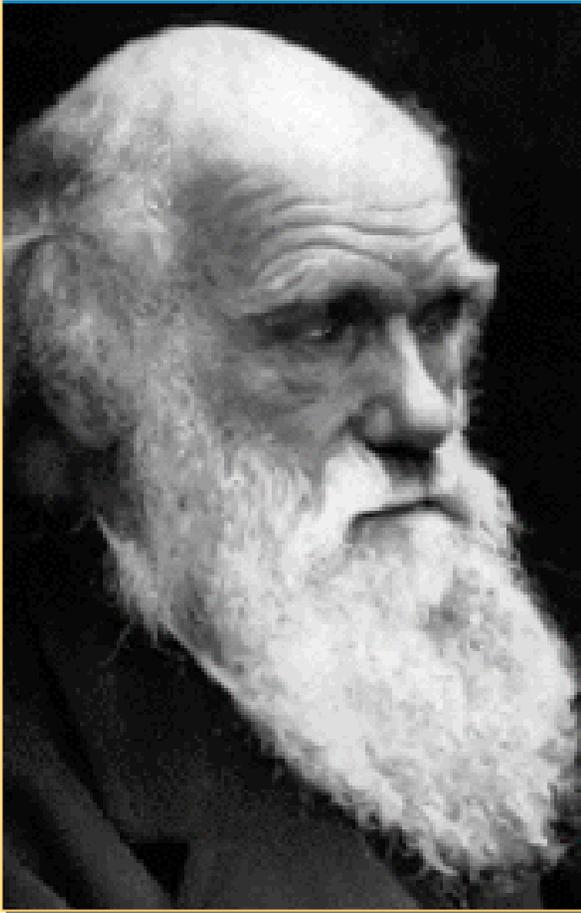
We apply our S&T resources to national and homeland security

- Detecting, preventing, and reversing the proliferation of weapons of mass destruction
- Deploying integrated systems for incident awareness, detection, and response
- Providing technology for detecting explosives at the part-per-trillion level
- Delivering enhanced protection and new capabilities to first responders and warfighters



Oak Ridge National Laboratory: Ready for the next generation of great science





**“It is not the strongest
of the species that
survive, nor the most
intelligent, but the one
most responsive
to change.”**

– Charles Darwin