

# Oak Ridge National Laboratory: 21st Century Science and Technology



## **Presented to**

Oak Ridge Chapter, ASM International

2007 Educational Symposium

Neutrons for Materials Science and Engineering

Michelle V. Buchanan

**Associate Laboratory Director for Physical Sciences**

**Oak Ridge, Tennessee**

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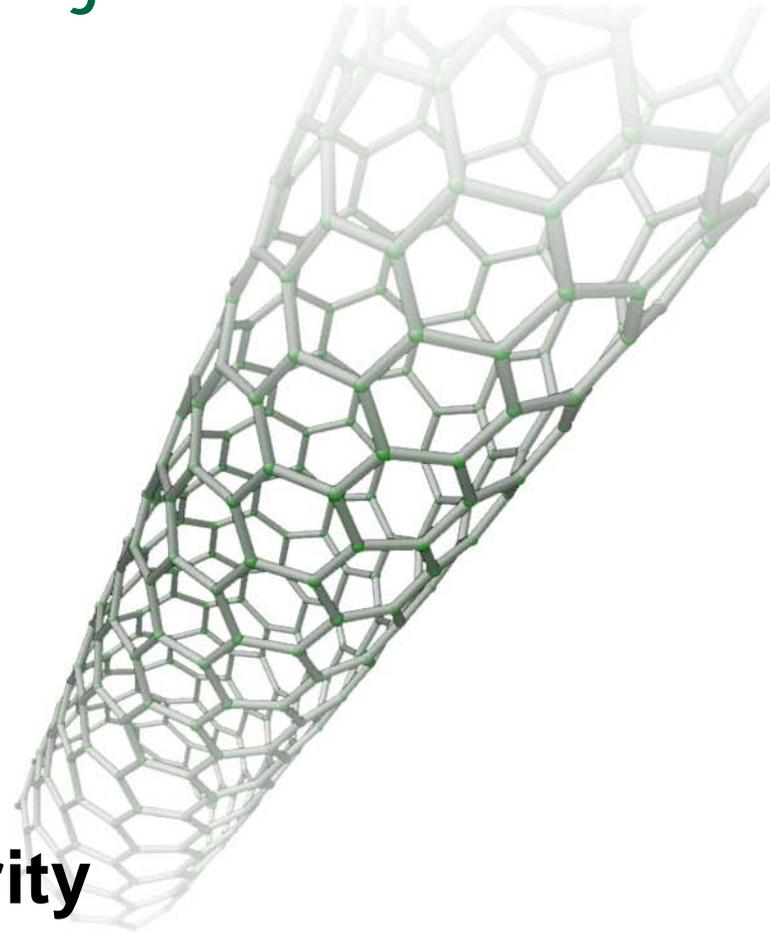
# ORNL is DOE's largest science and energy laboratory



- **\$1B budget**
- **4,100 employees**
- **3,000 research guests annually**
- **\$300 million invested in modernization**
- **World's most powerful open scientific computing facility**
- **Nation's largest concentration of open source materials research**
- **Nation's most diverse energy portfolio**
- **Bringing the \$1.4B Spallation Neutron Source into operation**
- **Managing the \$1.1B U.S. ITER project**

# We apply our strengths in science and technology to six major missions

- **Neutron sciences**
- **Advanced materials**
- **Ultrascale computing**
- **Systems biology**
- **Advanced energy systems**
- **National and homeland security**



# Putting the world's best tools for neutron scattering to work

**The \$1.4 billion Spallation Neutron Source is now in operation**

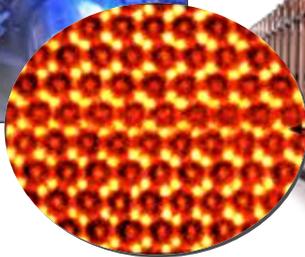
**The upgraded High Flux Isotope Reactor offers complementary capabilities**

**Thousands of researchers will come to Tennessee each year to use these facilities**

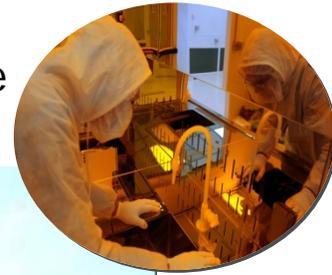
**The UT-ORNL Joint Institute for Neutron Sciences provides a user gateway for SNS and HFIR**

# Expanding our understanding of materials

World's highest resolution electron microscope



DOE's first nanoscale science research center



Hundreds of industry partners, thousands of university users

# Leading the development of petascale scientific computing

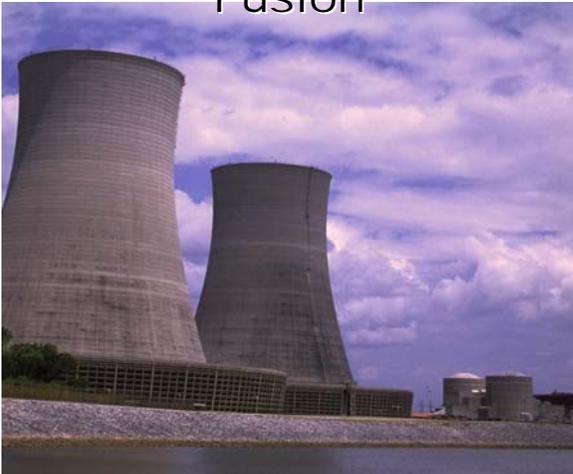
- **Addressing the nation's most compelling science and technology questions**
  - Climate
  - Fusion
  - Materials
  - Biology
- **Operating the world's most powerful open scientific computer**
- **On track to deliver 1-petaflops computing in 2008**

# Transforming the new biology into bioenergy and biomaterials production

**Developing biobased solutions for energy, the environment, and carbon sequestration**

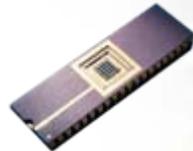
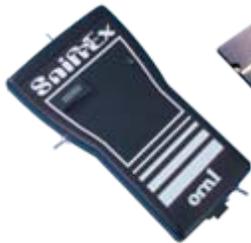


# Addressing the energy challenges of today . . . and tomorrow

<b>Generation</b>	<b>Distribution</b>	<b>Consumption</b>
Fossil Fission Renewables Fusion	Transmission technology Hydrogen Distributed energy resources	Buildings Industry Transportation
		

Supporting DOE's strategic goals  
for energy security and independence

# Enhancing national and homeland security



# Transforming the Laboratory

**East Campus**



**Chestnut Ridge Campus**



**Science and Technology Park**



**West Campus**

# Serving the community as a valued partner



**Science  
Education**



**Civic and  
Cultural Events**



**Corporate  
Volunteerism**



**Economic  
Development**

# Oak Ridge National Laboratory: Meeting the challenges of the 21st century

