

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



**Presented to:**

**White House Initiative  
on HBCUs**

**Technical Assistance  
Seminar**

**Presented by  
Will Minter**

**Norfolk, VA  
April 29, 2008**

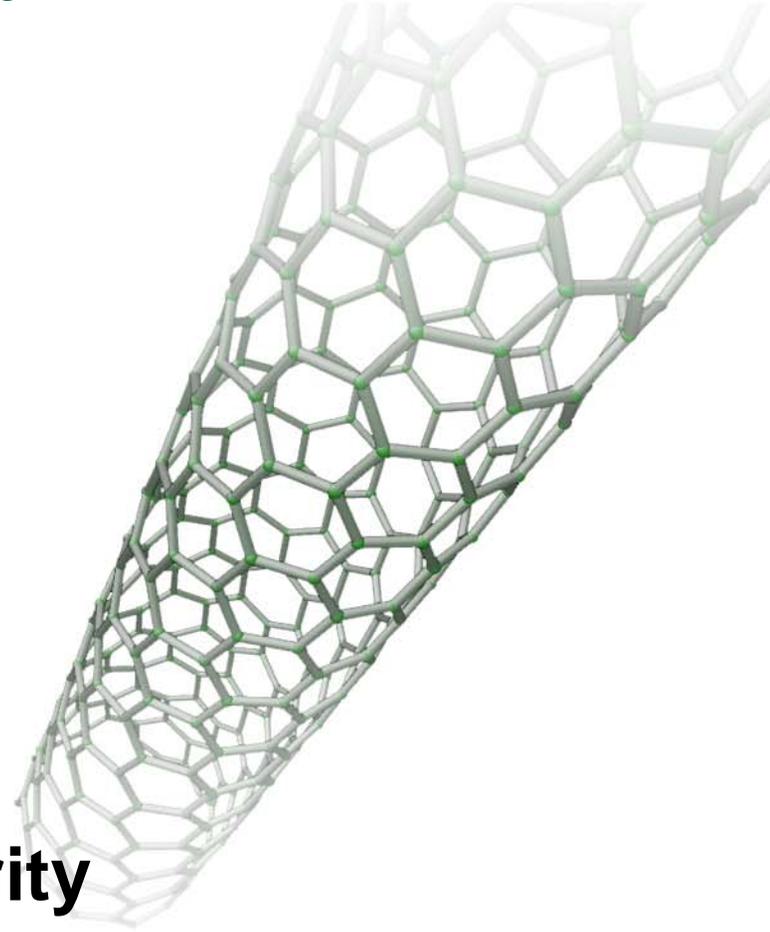
# Today, ORNL is DOE's largest science and energy laboratory



- **\$1.1B budget**
- **4,200 employees**
- **3,000 research guests annually**
- **\$350 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**
- **Operating the world's most intense pulsed neutron source**
- **Managing the billion-dollar U.S. ITER project**

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

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



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

**Spallation  
Neutron Source:**  
World's most  
powerful  
accelerator-based  
neutron source

**High Flux  
Isotope Reactor:**  
Complementary  
capabilities  
and a new cold  
neutron source

**UT-ORNL  
Joint Institute for  
Neutron Sciences:**  
User gateway  
for SNS and HFIR

**Ready  
to welcome  
thousands  
of researchers  
each year**

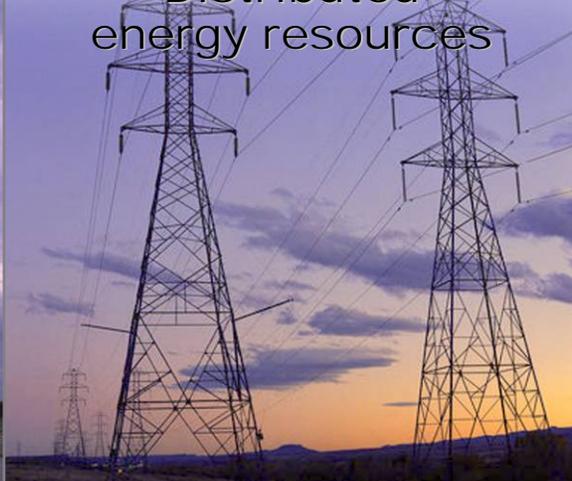
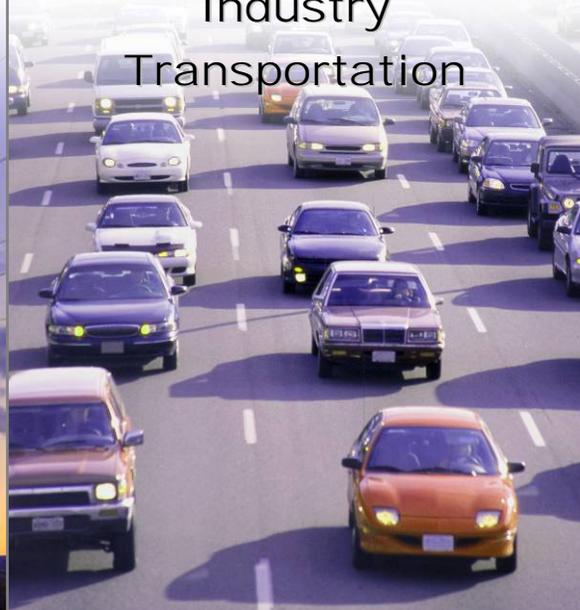


# Leading the development of petascale scientific computing

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



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

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

Supporting DOE's strategic goals for energy security and independence

# ORNL is committed to education.

- **ORNL has hosted undergraduates, graduate students, postgraduates, and faculty since 1946.**
- **In 2007, ORNL hosted nearly 850 participants at the laboratory for summer, academic year, and longer term assignments. 269 of these were undergraduates.**
- **Participants came from all over the United States plus the District of Columbia.**



# Day of Science

- **Scope: To facilitate a career path for college science students and mutual research collaborations with science professors**



Date: October 28-29, 2007

Attendees: 1,483

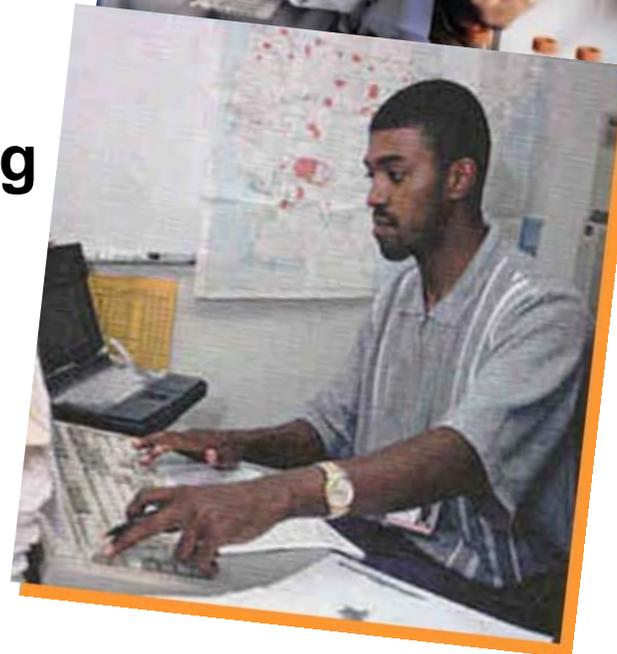
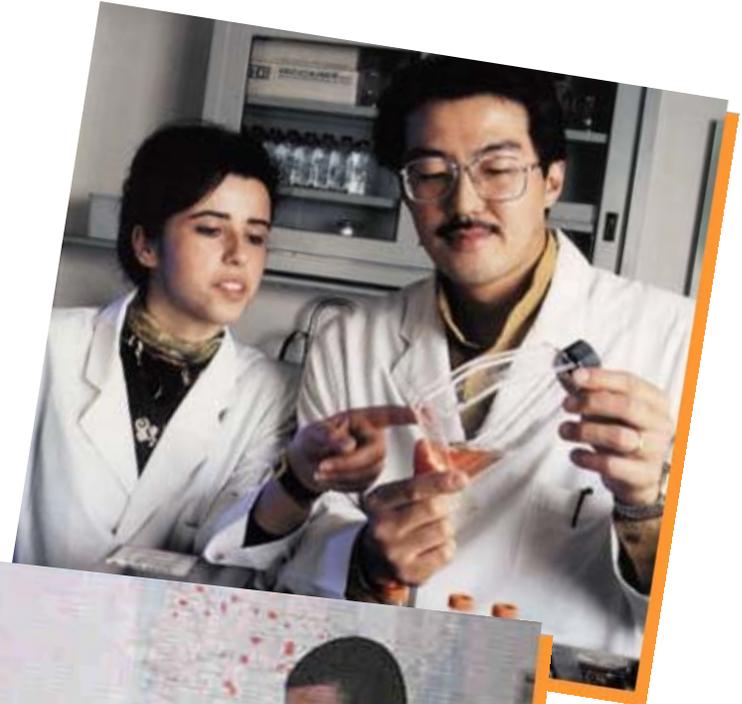
Institutions: 127 Colleges and Universities

HBCU/MEIs: 41 Colleges and Universities

DOE Labs 11

# What can you do at ORNL?

- **Conduct hands on research or hold internships in support areas**
- **Use state-of-the-art equipment**
- **Interact with staff scientists and others**
- **Look for answers to pressing scientific questions**
- **Gain valuable real-world experience**



# Student Internship Opportunities

- **DOE Community College Institute**
- **DOE Faculty and Student Teams Program (FAST)**
- **DOE Pre-Service Teacher Internships**
- **DOE Science Undergraduate Laboratory Internships**
- **Higher Education Research Experiences at ORNL (HERE)**
- **Nuclear Engineering Student Laboratory Synthesis**
- **Nuclear Regulatory Commission Student Research Participation Program**
- **ORNL Undergraduate Co-op Program (students commit to every other semester for several years).**
- **Research Alliance in Math and Science (RAMS)**

# Faculty Opportunities

- **Higher Education Experiences at ORNL for Faculty (HERE)**
- **DOE Faculty and Student Teams Program (FAST)**
- **Nuclear Regulatory Commission Faculty Research Participation Program**
- **ORNL/ORAU HBCU and MEI Summer Faculty Research Program**

# ORNL provides a unique experience!



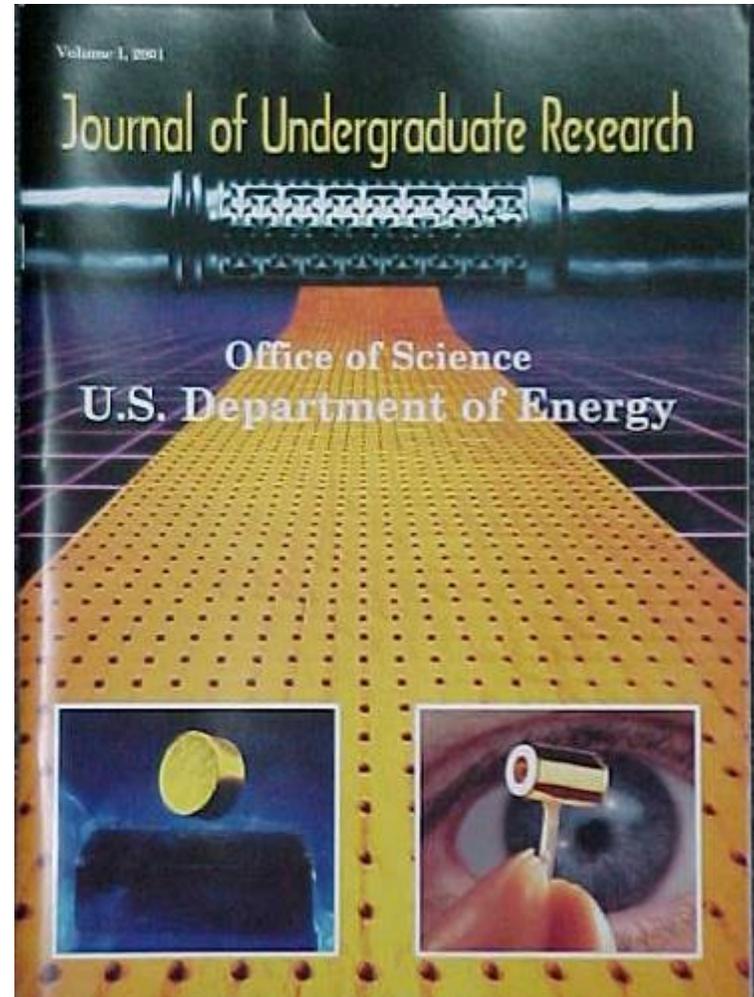
## A Chance to Learn – Students Have the Opportunity to:

- Attend seminars and workshops
- Participate in brown bag lunches on topics of interest
- Present at a poster session

# ORNL provides a unique experience!

## Opportunity to Excel

- Write and publish a scientific abstract
- Write and possibly publish a research paper in a journal



The only way to try - is to APPLY!

**DOE Science Undergraduate Laboratory Internships  
(SULI)**

**Pre-Service Teachers (PST)  
Community College Internships (CCI)**

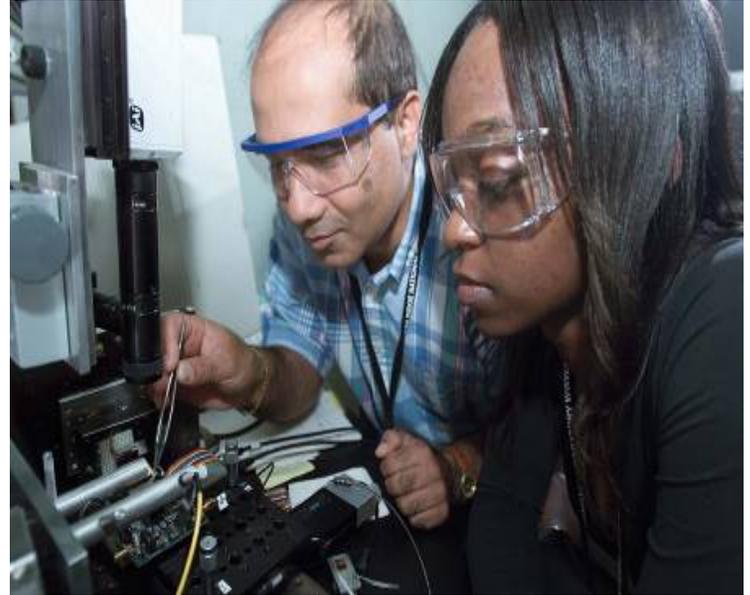
**<http://www.scied.science.doe.gov>  
Selections Start: FEBRUARY 1**

**Select ORNL as your first choice laboratory.**

In FY2007, 52 faculty from 33 institutions participated in ORNL faculty programs.

**Faculty participated from the following HBCUs:**

- **Alabama A&M**
- **California State University, Fresno**
- **Delaware State University**
- **Florida A&M University**
- **Jackson State University (3)**
- **Kentucky State University**
- **Morehouse College**
- **Prairie View A&M University**
- **North Carolina A&T State University (2)**
- **South Carolina State University**
- **Southern University, Baton Rouge**
- **Virginia State University (2)**



# ORNL Contracts awarded to HBCUs

- **2008**

- **Alcorn State University – Support of the research component of ORNL’s Community and Regional Resilience Initiative (CARRI)**

- **2007**

- **Morehouse College – 2 Contracts**

- **Technical support related to mapping strategies for ORNL’s HBCUs/MEI programs**
- **Technical support for ORNL sponsorship of Morehouse College Entrepreneurship Center Conference**

# ORNL Contracts awarded to HBCUs

- **2007**

- **Jackson State University – 3 Contracts**

- “Storm Surge/Flood Forecasting” research
- Disaster Response Intelligent System
- All Hazards Emergency Operations Management System

- **Alcorn State – 2 Contracts**

- Analysis of Weapons of Mass Destruction materials
- Development of sensor system for monitoring of chemical warfare agents in food and water technology

- **2004**

- **Fisk University**

- R & D Growth of Doped Mercuric Crystals

# ORNL Contracts awarded to HBCUs

- **2004**
  - **North Carolina A&T State University**
    - **Scholastic Global Optimization Method**
- **Other HBCUs awarded contracts since 1999:**
  - **Tuskegee University (3)**
  - **Mississippi Valley State University**
  - **Southern University and A&M College (2)**
  - **Alabama A&M University (2)**
  - **Norfolk State University**
  - **Florida A&M University (2)**
  - **Fisk (2), North Carolina A&T (3)**

# Contact:

- **Will Minter**

**Director, HBCUs/Minority Educational Institution Program  
Oak Ridge National Laboratory**

**Phone: 865-574-9803**

**E-Mail: [minterwd@ornl.gov](mailto:minterwd@ornl.gov)**

- **Cassandra McGee Stuart**  
**Program Manager**

**Phone: 865-576-3560**

**E-Mail: [mcgeecm@ornl.gov](mailto:mcgeecm@ornl.gov)**