



Undergraduate Opportunities for STEM Education

U.S. Department of Energy Office of Science

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U.S. DEPARTMENT OF
ENERGY

“Science is more essential for our prosperity, our security, our health, our environment, and our quality of life than it has ever been.”

President Barack Obama

Address to the National Academy of Sciences

27 April 2009

The Office of Science Enhances U.S. Competitiveness Through...

Transformational Science

Basic research for advanced scientific breakthroughs that will revolutionize our approach to the nation’s energy, environment, and national security challenges

National Scientific Facilities

World-leading research capabilities that maintain U.S. leadership in science & technological innovation

A Scientific Workforce for the Nation’s Future

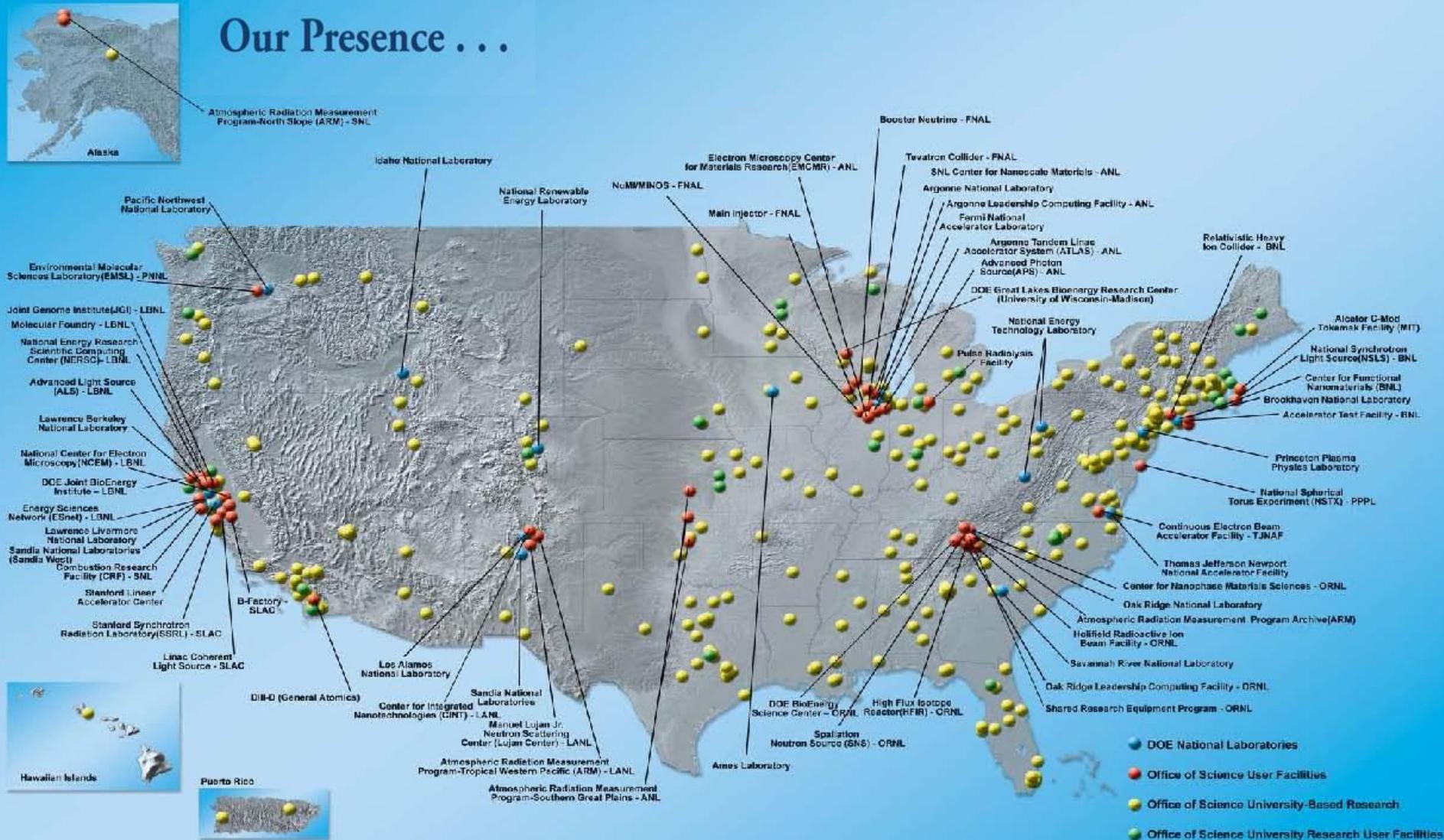
Supporting, training, & educating the nation’s current and future scientific & technical workforce: Ph.D.’s, post-docs, graduate students, & science educators



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Office of Science Supported Facilities & Universities

Our Presence . . .



Current Opportunities



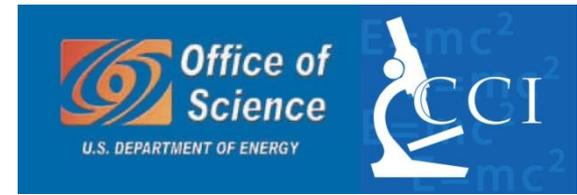
**Science Undergraduate
Laboratory Internship**



Pre-Service Teacher Program



**Faculty and
Student Teams**



Community College Institute

Student Benefits

- Undergraduate students mentored by a laboratory scientist or engineer
- \$420 per week stipend
- \$75 per week housing allowance
- Round trip travel to laboratory

Faculty Benefits

- Opportunity to collaborate in research at a DOE National Laboratory
- Linkage of research capability at home institution
- Create grant opportunities for research

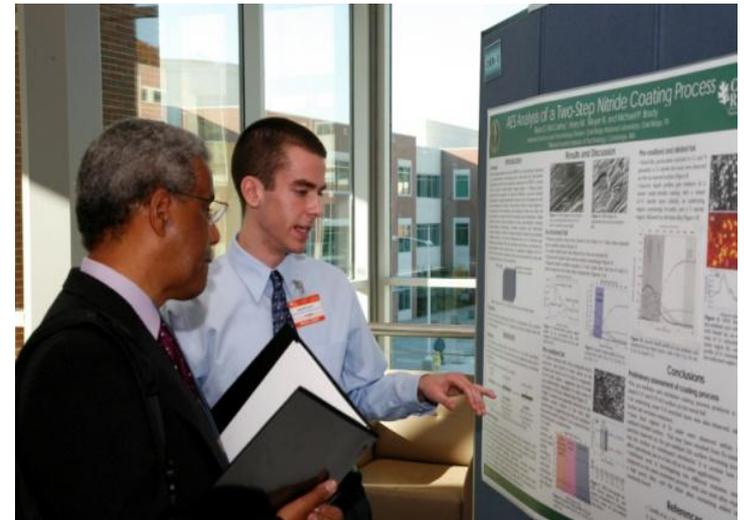
Undergraduate Research Opportunities With DOE

DOE runs one of the Nation's largest undergraduate research internships

- Numbers of students
 - 600 funded internships directly from DOE in FY 2008
 - 1,000 in FY 2009,
 - 1,300 in FY 2010
- 4,000 total funded in FY 2008

The Internships lead to:

- Mentored research on a world class project relevant to DOE's missions
- Publication in the DOE *Journal of Undergraduate Research*
- Eligibility for the SERCh competition
- Job possibilities at DOE



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Faculty & Student Teams (FaST) Research Program

Purpose: To provide opportunities for faculty and student teams to conduct research with DOE scientists.

FY 2009:

Number of Students: 200

Number of Faculty: 70

Number of Institutions: 65

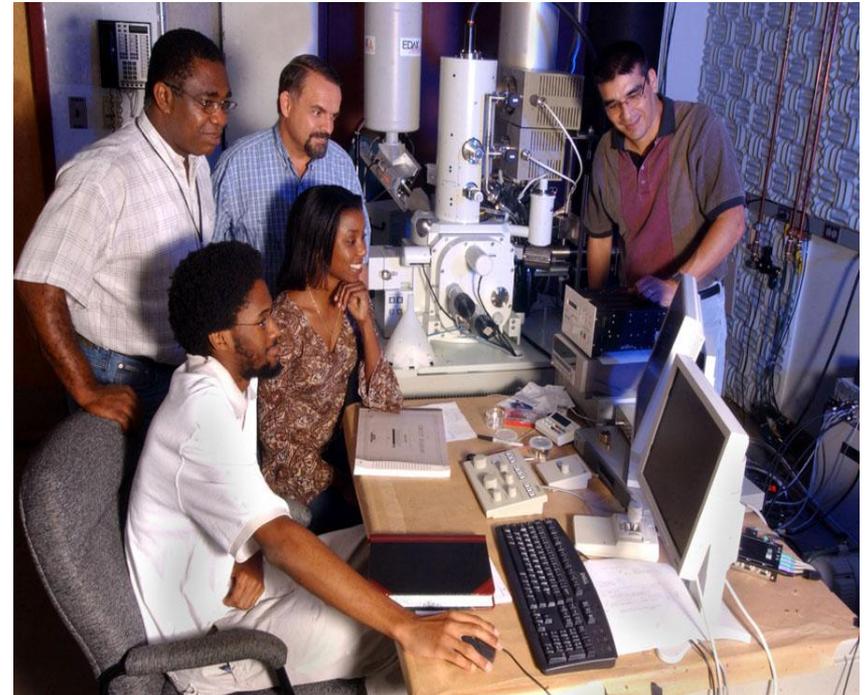
FY 2010:

Number of Students: 300

Number of Faculty: 100

Number of Institutions: 90

Mini-grants available to support continued research



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Science & Energy Research Challenge – SERCh

Purpose: Recognize and reward valuable undergraduate contributions to DOE research efforts

▪ 85 competitors in 2008

- Represented 67 colleges and universities
- Encouraged under-represented participation
 - 10 individuals from 6 HBCUs (11.76%)
 - 33 women (33.9%)
 - 29 EPSCoR universities (34.12%)
 - 53 small schools (<15,000 students) (62.35%)

▪ University Faculty at SERCh

- 43 faculty mentors accompanied students
- Seminars on connecting institutions with DOE

▪ Scholarships

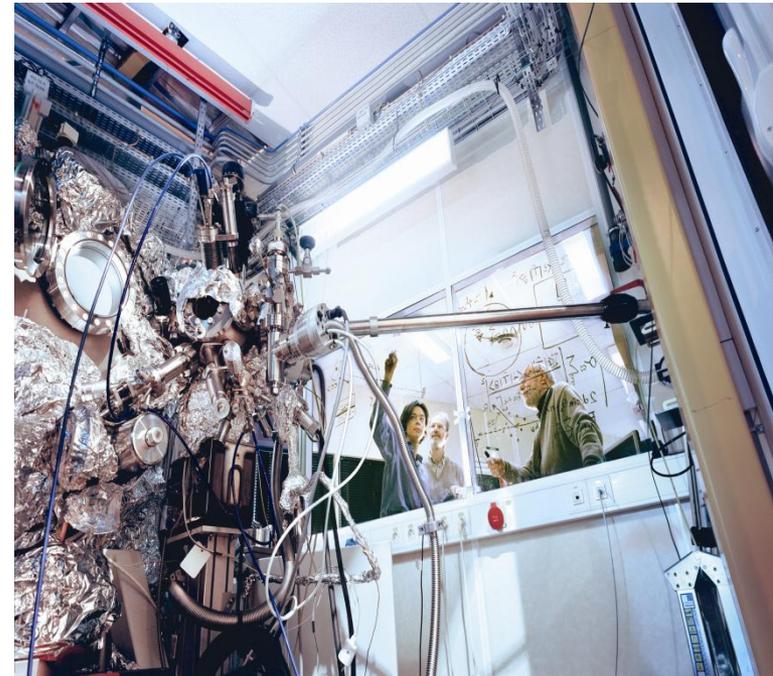
- Grand Prize winner awarded \$10,000 scholarship
- Multiple scholarship winners in multiple categories



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Future Opportunities

- **Graduate Fellowship Program**
 - Responsive to DOE workforce needs
 - Up to 150 Graduate Fellowships in FY10
- **RE-ENERGYSE** (REgaining our ENERGY Science & Engineering Edge)
 - Presidential initiative
 - “To capture the imagination of young people, and teach them about the role that science and technology can play in addressing our energy challenge”
 - Jointly funded by the Department of Energy and the National Science Foundation
 - Undergraduate research opportunities



Future Opportunities

■ Distributed Education

- Pilot in FY10 with High Performance Computing curriculum linked to DOE mission research in energy and environment
- 10 MSI's will participate



■ New Partnerships with Tribal Nations

- FY10 Tribal Nation STEM research consortium
- FY10 Tribal Nation Regional National Science Bowl Competition





Questions and Comments

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