

Grant Opportunities

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April 7, 2009

Engineering Research Council Meeting hosted by ASEE
March 9-10, 2009

(NIH) - Engineering Research at NIBIB

(Associate Director for Science Programs **National Institute for Biomedical Imaging and Bioengineering** -William Heetderks, M.D., Ph.D).

1. **Early Stage Investigator and New Investigator Policy**

<http://grants.nih.gov/grants/guide/noticefiles/NOTOD09013.html>)

New Investigator: An investigator who has not competed successfully as PD/PI for a significant NIH independent research award.

Early Stage Investigator : A new investigator who is within 10 years of completing his/her terminal research degree

2. **New Peer review procedures – 9 point rating scale**

1-Exceptional 2-Outstanding.....9-Poor

Evaluation criteria	–	Significance
		Investigator
		Innovation
		Approach
		Environment

For FY 2009, NIH to support 1650 or more New Investigators across all Institutes and Centers, a number equivalent to that achieved in FY2008.

American Recovery & Reinvestment Act of 2009 (ARRA)

- Preserve and create jobs and promote economic recovery.
- Assist those most impacted by the recession.
- Provide investments to increase economic efficiency by promoting technological advances
 - \$8.2 billion in support of scientific research priorities
 - \$1 billion to support Extramural Construction, Repairs, and Alterations
 - \$300 million for Shared Instrumentation and other capital equipment
 - \$500 million for NIH buildings and facilities
 - \$400 million for Comparative Effectiveness Research (CER)

- Fund recently peer reviewed, highly meritorious applications
- Fund new applications that have a reasonable expectation of progress in 2 yrs.
- Accelerate the tempo of ongoing science via NIH's supplement program for currently supported
- Support new types of activities that fit into the structure of the ARRA.

Challenge Grants

- Up to \$500K total cost per year
- 2 years of funding, April 27, 2009 submission date; September 30, 2009 anticipated start date
- 12 page limit for research plan, Enhanced review criteria
- New scoring system

Challenge Grant Areas

- Behavior, Behavioral Change, and Prevention
- Bioethics
- Biomarker Discovery and Validation
- Clinical Research
- Enabling Technologies
- Enhancing Clinical Trials
- Genomics
- Health Disparities
- Information Technology for Processing Health Care Data
- Regenerative Medicine
- Smart Biomaterials
- Stem Cells
- Translational Science
- http://grants.nih.gov/grants/funding/challenge_award/Omnibus.pdf.

Target areas (roughly 150 topics):

- improving the accuracy of biopsy sampling / staging of disease such as in the evaluation for prostate cancer,
- reducing the incidence of complications such as in improving prostate nerve bundle sparing,
- reducing recovery time such as in thoracic cancer resection and
- improving the safety of interventional procedures such as in lead placement in deep brain stimulation.
- Development of minimally invasive image guided systems

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Shared Instrumentation

- For investigators to purchase or upgrade commercially available instruments that cost at least \$100K. \$500K cap; -Three or more NIH funded investigators
- Stimulus funds to supplement, NOT-RR-09-008, Due Date: May 6, 2009
- Approximately \$160M in FY2010 to fund; approximately 40 new awards; at least \$600K, \$8M cap

High End Instrumentation Grant Program(S10)

Due Date: May 6, 2009

- approximately \$160M in FY2010 to fund
- approximately 40 new awards
- at least \$600K, \$8M cap
- three or more NIH funded investigators

CORE FACILITY RENOVATE, REPAIR -RFARR09007

- Renovate, repair, or improve core facilities
- Due Date: September 17, 2009
- Support direct costs between \$1M and \$10M
- Project period of 5 yr max.
- The PI must be a highly placed institutional individual

Extramural Research Facilities Improvement Program

- Expand, remodel, renovate, or alter biomedical or behavioral research facilities
- Due Date: May 6, 2009 (projects between \$2M and \$5M);
- June 17, 2009 (projects between \$10M and \$15M),
- July 17, 2009 (projects between \$5M and \$10M)
- Project period up to 5 years
- The PI must be a highly placed institutional individual
- \$1B appropriated to construct, repair or renovate existing non Federal research facilities

www.nibib.nih.gov

Research Opportunities in DOE' s Office of Science, Deputy Director for Science Programs & Acting Director Office of Science, U.S. Department of Energy: Patricia Dehmer

ADMINISTRATIONS ENERGY PLAN

1. Within 10 years save more oil than we currently import from the Middle East and Venezuela combined.
2. Put 1 million plug in hybrid cars – cars that can get up to 150 miles per gallon – on the road by 2015.
3. Generate 10 percent of our electricity from renewable sources by 2012, and 25 percent by 2025
4. Implement an economy-wide, cap and trade program to reduce greenhouse gas emissions 80% by 2050.

Priority

- Priority: Science and Discovery: Invest in science to achieve transformational discoveries
- Priority: Change the landscape of energy demand and supply
- Priority: Economic Prosperity- Create millions of green jobs and increase competitiveness
- Priority: National Security and Legacy: Maintain nuclear deterrent and prevent proliferation
- Priority: Climate Change: Position U.S. to lead on climate change policy, technology, and science

Individual principal investigators (PIs) and small groups –

- Small collaborations pursuing “discovery class” research
- Funding usually <\$1M/year; work ongoing pending
- *Example: Development of a predictive understanding of emergent properties – such as high temperature*

Small, focused collaborations, e.g., the Energy Frontier Research Center Funding is up to \$5M/year

Energy Sciences Centers or Institutes, - Bio energy Research Centers –

- Large multidisciplinary groups, often including nonscientific participants such as economists and policy experts, working at the interface between discovery science and mission requirements in areas of energy, environment, and climate. Work likely connects with that of DOE technology offices and industry.
- Funding is up to \$25M/year; work funded for 5 years and may be renewed pending peer review

Recent Solicitations

- Research Opportunities at Rare Isotope Beam Facilities Plasma Science Centers Notice DEPS0208ER0825
- High Performance Networks for Distributed Peta scale Science Notice
- High Energy Physics Outstanding Junior Investigator Program
- Advanced Detector Research Program Notice DEPS0208ER0831
- Office of Nuclear Physics Outstanding Junior Investigator Program
- Fusion Simulation Program Notice DEPS0209ER0904
- Fundamental Research in Superconducting RF Cavity Design
- Environmental Remediation Science Program Notice Pre applications due January 30, 2009; Formal due April 9, 2009.
- Integrated Radiochemistry Research Projects of Excellence Notice DEPS0209ER0908; Pre applications due February 16, 2009; Formal applications due April 2, 2009.

- **Facility Construction** – Funds accelerate completion of a number of ongoing construction projects for major scientific user facilities, major items of equipment for those facilities, and laboratory infrastructure. General Plant Projects (GPP) update laboratory infrastructure and establish new laboratory research space, renovate existing laboratory space, demolish inadequate facilities, and improve utility systems across SC labs.
- **Facility Operations/Infrastructure** – Funds increase operations, experimental support, and infrastructure improvements at scientific user facilities across SC.
- **Research** – Funds support selected research programs across SC Energy Frontier Research Centers are included.
- **Computing** – Funds support advanced networking; midrange distributed computing; and computation partnerships in areas important to DOE energy missions.
- **Fellowships** – A program to support graduate students and early career scientists

NSF

Economic Stimulus Package: American Recovery and Reinvestment Act (ARRA)

- NSF Support \$3B To be Spent primarily in FY09
- Primary Focus: Improving Success Rate (*currently about 16% in ENG*)
- Emphasis on CAREER Awards
- No new solicitations* or Supplements
- Additional Accountability and Reporting

**Exceptions are ARI, MRI and PSM*

Major Research Instrumentation (MRI)

- Increase access to scientific and engineering equipment for research and research training in U.S. academic institutions.
- Improve the quality, expand the scope of research and training in science and engineering, and to foster the integration of research and education by providing instrumentation for research intensive learning environments.
- Encourage the development and acquisition of research instrumentation for shared use across academic departments, among research institutions, and in concert with private sector partners.

MRI

Instrumentation Acquisition or Development

Two proposals for acquisition or development; a third for development. Award size \$ 100,000 to \$4 Million

- Exceptions for non Ph.D. granting institutions or for mathematical and social, behavioral and economic sciences,

Cost sharing None required for non Ph.D. granting institutions; otherwise 30%

Deadline for proposal submission: 4th Thursday in January

Ph.D. granting institutions

- academic institutions that have produced more than 20 Ph.D.s in all NSF supported disciplines during the previous two academic years

Non Ph.D. granting institutions

- two and four year colleges and universities that have produced fewer than 20 Ph.D.s in all NSF supported disciplines during the previous two academic years

Non degree granting institutions

- independent nonprofit research institutions, research museums, and legally incorporated consortia of eligible institutions

- **Faculty Early Career Development (CAREER) Program**
- Supports **junior faculty** who exemplify the role of **teacher scholars** through outstanding research excellent education, integration of education and research
- Encourages women, members of under-represented minority groups, and persons with disabilities to apply
- **\$80M** invested each year for 425 new awards
- ENG awards are \geq **\$400K for 4 years**
- Deadlines vary by directorate; **ENG proposals due July 22, 2009**

Broadening Participation Research Initiation Grants in Engineering (BRIGE)

- Funding opportunity intended to increase the diversity of researchers through research program support early in their careers
- Encourages support of underrepresented groups, engineers at minority serving institutions, and persons with disabilities
- Up to \$175,000 over two years

- **Early Concept Grants for Exploratory Research (EAGER)** High risk, exploratory, transformative research
Began Jan. 1, 2009; Upto \$300K over two years
- **Grants for Rapid Response Research (RAPID)** Research of great urgency with regard to data, facilities, or equipment, such as research on disasters; Upto \$200K over one year
- **ADVANCE:** Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers
 - Graduate Research Fellowships for Women
 - Graduate Research Supplements

Emerging Frontiers in Research and Innovation (EFRI)

Supports **higher risk, Higher payoff** opportunities that are potentially transformative and address a **national need or grand challenge**

Topic FY 2009 are:

- Bio-Sensing and Bio Actuation: Interface of Living and Engineered Systems (BSBA); Hydrocarbons from Biomass (Hy Bi)
- New topic areas to be announced in Spring
- \$25M investment for **4year; awards at \$500K per year**
- Each year: Letters of Intent due in Oct.; preliminary proposals due in Dec.; invited full proposals due in April

EFRI Web site: www.nsf.gov/eng/efri

Grant Opportunities for Academic Liaison with Industry (GOALI)

- Faculty & Students in Industry
- Industry scientists and engineers in academe
- Industry-University collaborative Res. Projects
 - Industry –university collaboration required
 - Required matching funds from industry for residence
 - NSF supports University participation
 - Industry Co-PI
 - Industry cost sharing
 - Technological relevance
 - Dissemination plan

Partnerships for Innovation PFI

- Stimulate the transformation of knowledge created by research and education enter into innovations that create new wealth, build strong local, regional and national economies
- Partnerships between academic institutions and other entities (private sector, government, development organizations)
- Catalyze or enhance infrastructure necessary to foster and sustain innovation for the long term.

Office of International Science & Engineering (OISE)

- Develop global scientists and engineers
 - International research experience for students
 - Doctoral dissertation enhancement Projects
 - International research fellowship
 - Partnerships for international research & education
 - International planning visits and workshops
 - Pan american advanced studies institutes

» <http://www.nsf.gov>

Engineering Education Research

- Addresses educational goals of the engineering community
- Supports focused efforts that integrate research into advances in undergraduate and PhD engineering education, and partner with K–12 pipeline innovators
- Curriculum and Infrastructure

**National Science Foundation
Office of Integrative Activities (OIA) Programs &
Activities Dr. Joan M. Frye Sr Staff Associate**

- Science and Technology Centers:
Integrative Partnerships (STC)
- Major Research Instrumentation (MRI)
- Experimental Program to Stimulate
Competitive Research (EPSCoR)
- Cyber Enabled Discovery & Innovation

- **Current Programs supporting academic industry partnerships**
 - Small Business Innovation Research (SBIR)
 - Small Business Technology Transfer Research (STTR)
 - Industry/ University Cooperative Research Centers (I/UCRC)
- Partnerships for Innovation (PFI) Grant
- Opportunities for Academic Liaison with Industry(GOALI)

IIP supports a wide spectrum of Technology Areas

- Advanced Materials
- Manufacturing
- Civil, Infrastructure Systems
- Chemical Based
- Technologies
- Energy and Environment
- Biotechnology
- Electronics
- Information Based Technologies