

110TH CONGRESS  
1ST SESSION

# H. R. 363

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IN THE SENATE OF THE UNITED STATES

APRIL 25, 2007

Received; read twice and referred to the Committee on Health, Education,  
Labor, and Pensions

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## AN ACT

To authorize programs for support of the early career development of science and engineering researchers, and for support of graduate fellowships, and for other purposes.

1       *Be it enacted by the Senate and House of Representa-*  
2       *tives of the United States of America in Congress assembled,*

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Sowing the Seeds  
3 Through Science and Engineering Research Act”.

4 **SEC. 2. NATIONAL SCIENCE FOUNDATION EARLY CAREER**  
5 **AWARDS FOR SCIENCE AND ENGINEERING**  
6 **RESEARCHERS.**

7 (a) IN GENERAL.—The Director of the National  
8 Science Foundation shall carry out a program to award  
9 grants to scientists and engineers at the early stage of  
10 their careers at institutions of higher education and orga-  
11 nizations described in subsection (c)(2) to conduct re-  
12 search in fields relevant to the mission of the Foundation.  
13 The existing Faculty Early Career Development (CA-  
14 REER) Program may be designated as the mechanism for  
15 awarding such grants.

16 (b) SIZE AND DURATION OF AWARD.—The duration  
17 of awards under this section shall be 5 years, and the  
18 amount per year shall be at least \$80,000.

19 (c) ELIGIBILITY.—Award recipients shall be individ-  
20 uals who are employed in a tenure-track position as an  
21 assistant professor or equivalent title, or who hold an  
22 equivalent position, at—

23 (1) an institution of higher education in the  
24 United States; or

25 (2) an organization in the United States that is  
26 a nonprofit, nondegree-granting research organiza-

1       tion such as a museum, observatory, or research lab-  
2       oratory.

3       (d) SELECTION.—Award recipients shall be selected  
4       on a competitive, merit-reviewed basis.

5       (e) SELECTION PROCESS AND CRITERIA FOR  
6       AWARDS.—An applicant seeking funding under this sec-  
7       tion shall submit a proposal to the Director at such time,  
8       in such manner, and containing such information as the  
9       Director may require. In evaluating the proposals sub-  
10      mitted under this section, the Director shall consider, at  
11      a minimum—

12           (1) the intellectual merit of the proposed work;

13           (2) the innovative or transformative nature of  
14      the proposed research;

15           (3) the extent to which the proposal integrates  
16      research and education, including undergraduate  
17      education in science and engineering disciplines; and

18           (4) the potential of the applicant for leadership  
19      at the frontiers of knowledge.

20      (f) AWARDS.—In awarding grants under this section,  
21      the Director shall endeavor to ensure that the recipients  
22      are from a variety of types of institutions of higher edu-  
23      cation and nonprofit, nondegree-granting research organi-  
24      zations. In support of this goal, the Director shall broadly  
25      disseminate information about when and how to apply for

1 grants under this section, including by conducting out-  
2 reach to Historically Black Colleges and Universities that  
3 are part B institutions as defined in section 322(2) of the  
4 Higher Education Act of 1965 (20 U.S.C. 1061(2)) and  
5 minority institutions (as defined in section 365(3) of that  
6 Act (20 U.S.C. 1067k(3))). In awarding grants under this  
7 section, the Director shall give special consideration to eli-  
8 gible early-career researchers who have followed alter-  
9 native career paths such as working part-time or in non-  
10 academic settings, or who have taken a significant career  
11 break or other leave of absence.

12 (g) AUTHORIZATION OF APPROPRIATION.—For each  
13 of the fiscal years 2008 through 2012, the Director shall  
14 allocate at least 3.5 percent of funds appropriated to the  
15 National Science Foundation for Research and Related  
16 Activities to the grants program under this section, except  
17 to the extent that a sufficient number of meritorious grant  
18 applications have not been received for a fiscal year.

19 (h) REPORT.—Not later than 6 months after the date  
20 of enactment of this Act, the Director shall transmit to  
21 the Committee on Science and Technology of the House  
22 of Representatives and to the Committee on Commerce,  
23 Science, and Transportation of the Senate a report de-  
24 scribing the distribution of the institutions from which in-  
25 dividuals have participated in the Faculty Early Career

1 Development Program since fiscal year 2001 among each  
2 of the categories of institutions of higher education de-  
3 fined by the Carnegie Foundation for the Advancement  
4 of Teaching and the organizations in subsection (c)(2).

5 (i) EVALUATION.—Not later than 2 years after the  
6 date of enactment of this Act, the Director shall transmit  
7 to the Committee on Science and Technology of the House  
8 of Representatives and to the Committee on Commerce,  
9 Science, and Transportation of the Senate a report evalu-  
10 ating the impact of the program carried out under this  
11 section on the ability of young faculty to compete for Na-  
12 tional Science Foundation research grants.

13 **SEC. 3. DEPARTMENT OF ENERGY EARLY CAREER AWARDS**  
14 **FOR SCIENCE AND ENGINEERING RESEARCH-**  
15 **ERS.**

16 (a) IN GENERAL.—The Director of the Office of  
17 Science of the Department of Energy shall carry out a  
18 program to award grants to scientists and engineers at  
19 the early stage of their careers at institutions of higher  
20 education and organizations described in subsection (c)(2)  
21 to conduct research in fields relevant to the mission of the  
22 Department, giving priority to grants to expand domestic  
23 energy production and use through coal-to-liquids tech-  
24 nology and advanced nuclear reprocessing.

1 (b) SIZE AND DURATION OF AWARD.—The duration  
2 of awards under this section shall be up to 5 years, and  
3 the amount per year shall be at least \$80,000.

4 (c) ELIGIBILITY.—Award recipients shall be individ-  
5 uals who are employed in a tenure-track position as an  
6 assistant professor or equivalent title, or who hold an  
7 equivalent position, at—

8 (1) an institution of higher education in the  
9 United States; or

10 (2) an organization in the United States that is  
11 a nonprofit, nondegree-granting research organiza-  
12 tion such as a museum, observatory, or research lab-  
13 oratory.

14 (d) SELECTION.—Award recipients shall be selected  
15 on a competitive, merit-reviewed basis.

16 (e) SELECTION PROCESS AND CRITERIA FOR  
17 AWARDS.—An applicant seeking funding under this sec-  
18 tion shall submit a proposal to the Director of the Office  
19 of Science at such time, in such manner, and containing  
20 such information as the Director may require. In evalu-  
21 ating the proposals submitted under this section, the Di-  
22 rector shall consider, at a minimum—

23 (1) the intellectual merit of the proposed work;

24 (2) the innovative or transformative nature of  
25 the proposed research;

1           (3) the extent to which the proposal integrates  
2           research and education, including undergraduate  
3           education in science and engineering disciplines; and

4           (4) the potential of the applicant for leadership  
5           at the frontiers of knowledge.

6           (f) COLLABORATION WITH NATIONAL LABORA-  
7           TORIES.—In awarding grants under this section, the Di-  
8           rector shall give priority to proposals in which the pro-  
9           posed work includes collaboration with the Department of  
10          Energy National Laboratories.

11          (g) AWARDS.—In awarding grants under this section,  
12          the Director shall endeavor to ensure that the recipients  
13          are from a variety of types of institutions of higher edu-  
14          cation and nonprofit, nondegree-granting research organi-  
15          zations. In support of this goal, the Director shall broadly  
16          disseminate information about when and how to apply for  
17          grants under this section, including by conducting out-  
18          reach to Historically Black Colleges and Universities that  
19          are part B institutions as defined in section 322(2) of the  
20          Higher Education Act of 1965 (20 U.S.C. 1061(2)) and  
21          minority institutions (as defined in section 365(3) of that  
22          Act (20 U.S.C. 1067k(3))).

23          (h) AUTHORIZATION OF APPROPRIATIONS.—There  
24          are authorized to be appropriated to the Secretary of En-  
25          ergy to carry out the Director’s responsibilities under this

1 section \$25,000,000 for each of the fiscal years 2008  
2 through 2012.

3 (i) REPORT ON RECRUITING AND RETAINING EARLY  
4 CAREER SCIENCE AND ENGINEERING RESEARCHERS AT  
5 THE NATIONAL LABORATORIES.—Not later than 3  
6 months after the date of enactment of this Act, the Direc-  
7 tor of the Office of Science shall transmit to the Com-  
8 mittee on Science and Technology of the House of Rep-  
9 resentatives and to the Committee on Energy and Natural  
10 Resources of the Senate a report on efforts to recruit and  
11 retain young scientists and engineers at the early stages  
12 of their careers at the Department of Energy National  
13 Laboratories. The report shall include—

14 (1) a description of Department of Energy and  
15 National Laboratory policies and procedures, includ-  
16 ing financial incentives, awards, promotions, time set  
17 aside for independent research, access to equipment  
18 or facilities, and other forms of recognition, designed  
19 to attract and retain young scientists and engineers;

20 (2) an evaluation of the impact of these incen-  
21 tives on the careers of young scientists and engi-  
22 neers at Department of Energy National Labora-  
23 tories, and also on the quality of the research at the  
24 National Laboratories and in Department of Energy  
25 programs;

1           (3) a description of what barriers, if any, exist  
2           to efforts to recruit and retain young scientists and  
3           engineers, including limited availability of full time  
4           equivalent positions, legal and procedural require-  
5           ments, and pay grading systems; and

6           (4) the amount of funding devoted to efforts to  
7           recruit and retain young researchers and the source  
8           of such funds.

9   **SEC. 4. INTEGRATIVE GRADUATE EDUCATION AND RE-**  
10                           **SEARCH TRAINEESHIP PROGRAM.**

11           (a) **FUNDING.**—For each of the fiscal years 2008  
12 through 2012, the Director of the National Science Foun-  
13 dation shall allocate at least 1.5 percent of funds appro-  
14 priated for Research and Related Activities to the Integra-  
15 tive Graduate Education and Research Traineeship pro-  
16 gram.

17           (b) **COORDINATION.**—The Director shall coordinate  
18 with Federal departments and agencies, as appropriate,  
19 to expand the interdisciplinary nature of the Integrative  
20 Graduate Education and Research Traineeship program.

21           (c) **AUTHORITY TO ACCEPT FUNDS FROM OTHER**  
22 **AGENCIES.**—The Director is authorized to accept funds  
23 from other Federal departments and agencies to carry out  
24 the Integrative Graduate Education and Research  
25 Traineeship program.

1 **SEC. 5. PRESIDENTIAL INNOVATION AWARD.**

2 (a) ESTABLISHMENT.—The President shall periodi-  
3 cally present the Presidential Innovation Award, on the  
4 basis of recommendations received from the Director of  
5 the Office of Science and Technology Policy or on the  
6 basis of such other information as the President considers  
7 appropriate, to individuals who develop one or more  
8 unique scientific or engineering ideas in the national inter-  
9 est at the time the innovation occurs.

10 (b) PURPOSE.—The awards under this section shall  
11 be made to—

12 (1) stimulate scientific and engineering ad-  
13 vances in the national interest;

14 (2) illustrate the linkage between science and  
15 engineering and national needs;

16 (3) show the potential of such innovation to  
17 substantively enhance the economic competitiveness  
18 of the United States through development of  
19 commercializable intellectual property; and

20 (4) provide an example to students of the con-  
21 tribution they could make to society by entering the  
22 science and engineering profession.

23 (c) CITIZENSHIP.—An individual is not eligible to re-  
24 ceive the award under this section unless at the time such  
25 award is made the individual—

1           (1) is a citizen or other national of the United  
2 States; or

3           (2) is an alien lawfully admitted to the United  
4 States for permanent residence who—

5                 (A) has filed an application for naturaliza-  
6 tion in the manner prescribed by section 334 of  
7 the Immigration and Nationality Act (8 U.S.C.  
8 1445); and

9                 (B) is not permanently ineligible to become  
10 a citizen of the United States.

11         (d) PRESENTATION.—The presentation of the award  
12 shall be made by the President with such ceremonies as  
13 he may deem proper, including attendance by appropriate  
14 Members of Congress.

15 **SEC. 6. NATIONAL COORDINATION OFFICE FOR RESEARCH**  
16 **INFRASTRUCTURE.**

17         (a) IN GENERAL.—The Office of Science and Tech-  
18 nology Policy shall establish a National Coordination Of-  
19 fice for Research Infrastructure. Such Office shall—

20                 (1) identify and prioritize the deficiencies in re-  
21 search facilities and major instrumentation located  
22 at academic institutions and at national laboratories  
23 that are available for use by academic researchers;  
24 and

1           (2) institute and coordinate the planning by  
2       Federal agencies for the acquisition, refurbishment,  
3       and maintenance of research facilities and major in-  
4       strumentation required to address the deficiencies  
5       identified under paragraph (1).

6 In prioritizing the deficiencies identified under paragraph  
7 (1), the Office shall consider research needs in areas rel-  
8 evant to the Nation's economic competitiveness.

9       (b) STAFFING.—The Director of the Office of Science  
10 and Technology Policy shall appoint individuals to serve  
11 in the Office established under subsection (a) from among  
12 the principal Federal agencies that support research in the  
13 sciences, mathematics, and engineering, and shall at a  
14 minimum include individuals from the National Science  
15 Foundation and the Department of Energy.

16       (c) REPORT.—The Director of the Office of Science  
17 and Technology Policy shall provide annually a report to  
18 Congress at the time of the President's budget proposal—

19           (1) describing the research infrastructure needs  
20       identified in accordance with subsection (a);

21           (2) listing research facilities projects and budg-  
22       et proposals, by agency, for major instrumentation  
23       acquisitions that are included in the President's  
24       budget proposal; and

1           (3) explaining how these facilities projects and  
2           instrumentation acquisitions relate to the defi-  
3           ciencies and priorities arrived at in accordance with  
4           subsection (a).

5 **SEC. 7. RESEARCH ON INNOVATION AND INVENTIVENESS.**

6           In carrying out its research programs on science pol-  
7           icy and on the science of learning, the National Science  
8           Foundation may support research on the process of inno-  
9           vation and the teaching of inventiveness.

10 **SEC. 8. REPORT ON NATIONAL INSTITUTE OF STANDARDS**  
11                           **AND TECHNOLOGY EFFORTS TO RECRUIT**  
12                           **AND RETAIN EARLY CAREER SCIENCE AND**  
13                           **ENGINEERING RESEARCHERS.**

14           Not later than 3 months after the date of enactment  
15           of this Act, the Director of the National Institute of  
16           Standards and Technology shall transmit to the Com-  
17           mittee on Science and Technology of the House of Rep-  
18           resentatives and to the Committee on Commerce, Science,  
19           and Transportation of the Senate a report on efforts to  
20           recruit and retain young scientists and engineers at the  
21           early stages of their careers at the National Institute of  
22           Standards and Technology laboratories and joint insti-  
23           tutes. The report shall include—

24                   (1) a description of National Institute of Stand-  
25           ards and Technology policies and procedures, includ-

1 ing financial incentives, awards, promotions, time set  
2 aside for independent research, access to equipment  
3 or facilities, and other forms of recognition, designed  
4 to attract and retain young scientists and engineers;

5 (2) an evaluation of the impact of these incen-  
6 tives on the careers of young scientists and engi-  
7 neers at the National Institute of Standards and  
8 Technology, and also on the quality of the research  
9 at the National Institute of Standards and Tech-  
10 nology's laboratories and in the National Institute of  
11 Standards and Technology's programs;

12 (3) a description of what barriers, if any, exist  
13 to efforts to recruit and retain young scientists and  
14 engineers, including limited availability of full time  
15 equivalent positions, legal and procedural require-  
16 ments, and pay grading systems; and

17 (4) the amount of funding devoted to efforts to  
18 recruit and retain young researchers and the source  
19 of such funds.

20 **SEC. 9. NASA'S CONTRIBUTION TO INNOVATION.**

21 (a) SENSE OF THE CONGRESS.—It is the sense of the  
22 Congress that—

23 (1) a balanced science program as authorized  
24 by section 101(d) of the National Aeronautics and  
25 Space Administration Authorization Act of 2005

1 (Public Law 109–155) contributes significantly to  
2 innovation in and the economic competitiveness of  
3 the United States; and

4 (2) a robust National Aeronautics and Space  
5 Administration, funded at the levels authorized  
6 under sections 202 and 203 of that Act, would offer  
7 a balance among science, aeronautics, exploration,  
8 and human space flight programs, all of which can  
9 attract and employ scientists, engineers, and techni-  
10 cians across a broad range of fields in science, tech-  
11 nology, mathematics, and engineering.

12 (b) PARTICIPATION IN INNOVATION AND COMPETI-  
13 TIVENESS PROGRAMS.—The Administrator of the Na-  
14 tional Aeronautics and Space Administration shall fully  
15 participate in any interagency efforts to promote innova-  
16 tion and economic competitiveness through scientific re-  
17 search and development within the spending levels cited  
18 in subsection (a).

19 **SEC. 10. UNDERGRADUATE SCHOLARSHIPS FOR SCIENCE,**  
20 **TECHNOLOGY, ENGINEERING, AND MATHE-**  
21 **MATICS.**

22 (a) ESTABLISHMENT.—The National Science Foun-  
23 dation shall establish a program, to be known as the Un-  
24 dergraduate Scholarships for Science, Technology, Engi-  
25 neering, and Mathematics, or US-STEM, program, for

1 awarding scholarships to undergraduate scholars in  
2 science, technology, engineering, and mathematics.

3 (b) ELIGIBILITY.—A student is eligible for a scholar-  
4 ship under this section only if the student—

5 (1) is enrolled at a public, 4-year college or uni-  
6 versity;

7 (2) will have completed at least one-half of the  
8 credit requirements for an undergraduate degree be-  
9 fore beginning studies to be funded by the scholar-  
10 ship;

11 (3) has maintained a grade point average in un-  
12 dergraduate studies of at least 3.0 on a scale of 4.0,  
13 or an equivalent level as calculated by the National  
14 Science Foundation, except that if the student's in-  
15 stitution appeals this criterion on the basis of undue  
16 hardship on the student, the National Science Foun-  
17 dation may waive this paragraph;

18 (4) has a total family income of less than  
19 \$75,000 per year, with such amount to be adjusted  
20 annually by the National Science Foundation for in-  
21 flation;

22 (5) has not been convicted of a felony; and

23 (6) is a citizen or permanent resident alien of  
24 the United States.

1           (c) SELECTION CRITERIA.—Scholarship recipients  
2 shall be selected on the basis of merit and such other cri-  
3 teria as the National Science Foundation shall establish.

4           (d) AWARDS.—The National Science Foundation  
5 shall announce awards before April 1 for each upcoming  
6 academic year, and may make up to 2,500 awards per  
7 year. Awards may be made for a maximum of 2 academic  
8 years for each student, and scholarship amounts shall be  
9 paid to the institution.

10          (e) ADVISORY BOARD.—The Director of the National  
11 Science Foundation shall establish an advisory board,  
12 which shall make recommendations to the Director for se-  
13 lection criteria for scholarship recipients, and provide  
14 guidance and oversight for the program.

15          (f) AUTHORIZATION OF APPROPRIATIONS.—There  
16 are authorized to be appropriated to the National Science  
17 Foundation for carrying out this section—

18               (1) \$30,000,000 for fiscal year 2009;

19               (2) \$60,000,000 for fiscal year 2010;

20               (3) \$61,800,000 for fiscal year 2011;

21               (4) \$63,600,000 for fiscal year 2012; and

1 (5) \$65,500,000 for fiscal year 2013.

Passed the House of Representatives April 24, 2007.

Attest: LORRAINE C. MILLER,  
*Clerk.*