

111<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

# H. R. 4502

To strengthen the capacity of eligible institutions to provide instruction in nanotechnology.

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IN THE HOUSE OF REPRESENTATIVES

JANUARY 26, 2010

Mr. WU (for himself and Mr. LIPINSKI) introduced the following bill; which was referred to the Committee on Science and Technology

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## A BILL

To strengthen the capacity of eligible institutions to provide instruction in nanotechnology.

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

3       **SECTION 1. SHORT TITLE.**

4       This Act may be cited as the “Nanotechnology Edu-  
5       cation Act”.

6       **SEC. 2. NANOTECHNOLOGY IN SCHOOLS.**

7       (a) FINDINGS.—The Congress makes the following  
8       findings:

9               (1) The rapidly growing field of nanotechnology  
10       is generating scientific and technological break-

1 throughs that will benefit society by improving the  
2 way many things are designed and made.

3 (2) Nanotechnology is likely to have a signifi-  
4 cant, positive impact on the security, economic well-  
5 being, and health of Americans as fields related to  
6 nanotechnology expand.

7 (3) In order to maximize the benefits of nano-  
8 technology to individuals in the United States, the  
9 United States must maintain world leadership in the  
10 field, including nanoscience and microtechnology, in  
11 the face of determined competition from other na-  
12 tions.

13 (4) According to the National Science Founda-  
14 tion, foreign students on temporary visas earned 33  
15 percent of all science and engineering doctorates  
16 awarded in the United States in 2007, the last year  
17 for which data are available. Foreign students  
18 earned 63 percent of the engineering doctorates.

19 (5) To maintain world leadership in nanotech-  
20 nology, the United States must make a long-term in-  
21 vestment in educating United States students in sec-  
22 ondary schools and institutions of higher education,  
23 so that the students are able to conduct nanoscience  
24 research and develop and commercialize nanotech-  
25 nology applications.

1           (6) Preparing United States students for ca-  
2           reers in nanotechnology, including nanoscience, re-  
3           quires that the students have access to the necessary  
4           scientific tools, including scanning electron micro-  
5           scopes designed for teaching, and requires training  
6           to enable teachers and professors to use those tools  
7           in the classroom and the laboratory.

8           (b) PURPOSE.—The purpose of this section is to  
9           strengthen the capacity of United States secondary  
10          schools and institutions of higher education to prepare  
11          students for careers in nanotechnology by providing grants  
12          to those schools and institutions to provide the tools nec-  
13          essary for such preparation.

14          (c) DEFINITIONS.—In this section:

15               (1) DIRECTOR.—The term “Director” means  
16               the Director of the National Science Foundation.

17               (2) ELIGIBLE INSTITUTION.—The term “eligi-  
18               ble institution” means an institution that is—

19                       (A) a public, private, parochial, or charter  
20                       secondary school that offers 1 or more ad-  
21                       vanced placement science courses or inter-  
22                       national baccalaureate science courses;

23                       (B) a community college, as defined in sec-  
24                       tion 3301 of the Elementary and Secondary  
25                       Education Act of 1965 (20 U.S.C. 7011);

1 (C) a 4-year institution of higher education  
2 or a branch, within the meaning of section  
3 498(j) of the Higher Education Act of 1965  
4 (20 U.S.C. 1099c(j)), of such an institution; or

5 (D) a informal learning science and tech-  
6 nology center.

7 (3) QUALIFIED NANOTECHNOLOGY EQUIP-  
8 MENT.—The term “qualified nanotechnology equip-  
9 ment” means equipment, instrumentation, or hard-  
10 ware that is—

11 (A) used for teaching nanotechnology in  
12 the classroom; and

13 (B) manufactured in the United States at  
14 least 50 percent from articles, materials, or  
15 supplies that are mined, produced, or manufac-  
16 tured, as the case may be, in the United States.

17 (d) PROGRAM AUTHORIZED.—

18 (1) PROGRAM AUTHORIZED.—The Director  
19 shall establish a nanotechnology in the schools pro-  
20 gram to strengthen the capacity of eligible institu-  
21 tions to provide instruction in nanotechnology. In  
22 carrying out the program, the Director shall award  
23 grants of not more than \$400,000 to eligible institu-  
24 tions to provide such instruction.

25 (2) ACTIVITIES SUPPORTED.—

1 (A) IN GENERAL.—An eligible institution  
2 shall use a grant awarded under this section—

3 (i) to acquire qualified nanotechnology  
4 equipment and software designed for  
5 teaching students about nanotechnology in  
6 the classroom;

7 (ii) to develop and provide educational  
8 services, including carrying out faculty de-  
9 velopment, to prepare students or faculty  
10 seeking a degree or certificate that is ap-  
11 proved by the State, or a regional accred-  
12 iting body recognized by the Secretary of  
13 Education; and

14 (iii) to provide teacher education and  
15 certification to individuals who seek to ac-  
16 quire or enhance technology skills in order  
17 to use nanotechnology in the classroom or  
18 instructional process.

19 (B) LIMITATIONS.—

20 (i) USES.—Not more than  $\frac{1}{4}$  of the  
21 amount of the funds made available  
22 through a grant awarded under this sec-  
23 tion may be used for software, educational  
24 services, or teacher education and certifi-  
25 cation as described in this paragraph.

1                   (ii) PROGRAMS.—In the case of a  
2                   grant awarded under this section to an in-  
3                   stitution of higher education, equipment  
4                   purchased using funds made available  
5                   through the grant shall be used primarily  
6                   by undergraduate programs.

7                   (3) APPLICATIONS AND SELECTION.—

8                   (A) IN GENERAL.—To be eligible to receive  
9                   a grant under this section, an eligible institu-  
10                  tion shall submit an application to the Director  
11                  at such time, in such manner, and accompanied  
12                  by such information as the Director may rea-  
13                  sonably require.

14                  (B) PROCEDURE.—Not later than 180  
15                  days after the date of enactment of this Act,  
16                  the Director shall establish a procedure for ac-  
17                  cepting such applications and publish an an-  
18                  nouncement of such procedure, including a  
19                  statement regarding the availability of funds, in  
20                  the Federal Register.

21                  (C) SELECTION.—In selecting eligible in-  
22                  stitutions to receive grants under this section,  
23                  and encouraging eligible institutions to apply  
24                  for such grants, the Director shall, to the great-  
25                  est extent practicable—

1 (i) select eligible entities in geographi-  
2 cally diverse locations;

3 (ii) encourage the application of his-  
4 torically Black colleges and universities  
5 (meaning part B institutions, as defined in  
6 section 322 of the Higher Education Act  
7 of 1965 (20 U.S.C. 1061)) and minority  
8 institutions (as defined in section 365 of  
9 such Act (20 U.S.C. 1067k)); and

10 (iii) select eligible institutions that in-  
11 clude institutions located in States partici-  
12 pating in the Experimental Program to  
13 Stimulate Competitive Research (com-  
14 monly known as “EPSCoR”).

15 (4) MATCHING REQUIREMENT AND LIMITA-  
16 TION.—

17 (A) IN GENERAL.—

18 (i) REQUIREMENT.—The Director  
19 may not award a grant to an eligible insti-  
20 tution under this section unless such insti-  
21 tution agrees that, with respect to the  
22 costs to be incurred by the institution in  
23 carrying out the program for which the  
24 grant was awarded, such institution will  
25 make available (directly or through dona-

1 tions from public or private entities) non-  
2 Federal contributions in an amount equal  
3 to  $\frac{1}{4}$  of the amount of the grant.

4 (ii) WAIVER.—The Director shall  
5 waive the matching requirement described  
6 in clause (i) for any institution with no en-  
7 dowment, or an endowment that has a dol-  
8 lar value lower than \$5,000,000, as of the  
9 date of the waiver.

10 (B) LIMITATION.—

11 (i) BRANCHES.—If a branch described  
12 in subsection (c)(1)(C) receives a grant  
13 under this section that exceeds \$100,000,  
14 that branch shall not be eligible, until 2  
15 years after the date of receipt of the grant,  
16 to receive another grant under this section.

17 (ii) OTHER ELIGIBLE INSTITU-  
18 TIONS.—If an eligible institution other  
19 than a branch referred to in clause (i) re-  
20 ceives a grant under this section that ex-  
21 ceeds \$100,000, that institution shall not  
22 be eligible, until 2 years after the date of  
23 receipt of the grant, to receive another  
24 grant under this section.

25 (5) ANNUAL REPORT AND EVALUATION.—

1 (A) REPORT BY INSTITUTIONS.—Each in-  
2 stitution that receives a grant under this sec-  
3 tion shall prepare and submit a report to the  
4 Director, not later than 1 year after the date of  
5 receipt of the grant, on its use of the grant  
6 funds.

7 (B) REVIEW AND EVALUATION.—

8 (i) REVIEW.—The Director shall an-  
9 nually review the reports submitted under  
10 subparagraph (A).

11 (ii) EVALUATION.—At the end of  
12 every third year, the Director shall evalu-  
13 ate the program authorized by this section  
14 on the basis of those reports. The Director,  
15 in the evaluation, shall describe the activi-  
16 ties carried out by the institutions receiv-  
17 ing grants under this section and shall as-  
18 sess the short-range and long-range impact  
19 of the activities carried out under the  
20 grants on the students, faculty, and staff  
21 of the institutions.

22 (C) REPORT TO CONGRESS.—Not later  
23 than 6 months after conducting an evaluation  
24 under subparagraph (B)(ii), the Director shall  
25 prepare and submit a report to Congress based

1           on the evaluation. In the report, the Director  
2           shall include such recommendations, including  
3           recommendations concerning the continuing  
4           need for Federal support of the program car-  
5           ried out under this section, as may be appro-  
6           priate.

7           (e) AUTHORIZATION OF APPROPRIATIONS.—There  
8           are authorized to be appropriated to the Director to carry  
9           out this section \$40,000,000 for fiscal year 2011, and  
10          such sums as may be necessary for fiscal years 2012  
11          through 2014.

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