Alliances for Graduate Education and the Professoriate (AGEP)

PROGRAM SOLICITATION
NSF 14-505

REPLACES DOCUMENT(S):
NSF 12-554

National Science Foundation

Directorate for Education & Human Resources
Division of Human Resource Development

Directorate for Mathematical & Physical Sciences

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):

February 05, 2014

AGEP-Transformation

February 12, 2014

AGEP-KAT and AGEP-BPR

IMPORTANT INFORMATION AND REVISION NOTES

The Alliances for Graduate Education and the Professoriate (AGEP) program will support three types of projects described in this solicitation: 1) AGEP-Transformation (AGEP-T); 2) AGEP-Knowledge Adoption and Translation (AGEP-KAT); and 3) AGEP-Broadening Participation Research in STEM Education (AGEP-BPR). This solicitation represents an expansion of the program to include strategic investments in the development and study of new models for STEM graduate education, postdoctoral training, and academic STEM career preparation that eliminate or mitigate negative factors and promote positive practices for underrepresented racial and ethnic minorities.

AGEP is interested in proposals that include any or all science, technology, engineering, and mathematics (STEM) fields supported by the NSF, including the social, behavioral and economic sciences, and multi-, cross-, or inter- disciplinary fields. AGEP has partnered with the Directorate for Mathematical and Physical Sciences (MPS) to support graduate student researchers through the MPS AGEP-Graduate Research Supplement Dear Colleague Letter (NSF 13-071) which is highlighted in this solicitation. However, AGEP projects are **not** limited to or focused only on the mathematical and physical sciences.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Alliances for Graduate Education and the Professoriate (AGEP)

Synopsis of Program:

AGEP is committed to the national goal of increasing the numbers of underrepresented minorities (URMs), including those with disabilities, entering and completing science, technology, engineering, and mathematics (STEM) graduate education and postdoctoral training to levels representative of the available pool. URMs include African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians and other Pacific Islanders. Increased URM participation in advanced STEM education and training is critical for supporting the development of a diverse professional STEM workforce especially a diverse STEM faculty who serve as the intellectual, professional, personal, and organizational role models that shape the expectations of future scientists and engineers. To achieve this long term goal, the AGEP program will support the development, implementation, study, and dissemination of innovative models and standards of graduate education and postdoctoral training that are designed to improve URM participation, preparation, and success.

AGEP projects must focus on URM U.S. citizens in STEM graduate education, and/or postdoctoral training, and their preparation for academic STEM careers at all types of institutions of higher education. STEM professional development more broadly may be included in projects with a strong and compelling argument. AGEP is interested in proposals that include any or all STEM fields supported by NSF including the social, behavioral and economic sciences, and multi-, cross-, or inter-disciplinary STEM fields.

AGEP encourages community colleges, primarily undergraduate institutions, minority-serving institutions (Historically Black Colleges and Universities, Hispanic-Serving Institutions, Alaskan Native and Native Hawaiian Serving Institutions, and Tribal Colleges and Universities), women's colleges, and institutions primarily serving

persons with disabilities to participate as lead institutions and as alliance partners in all three types of AGEP projects.

AGEP intends to support the following types of projects:

- **AGEP-Transformation** - Strategic alliances of institutions and organizations to develop, implement, and study innovative evidence-based models and standards for STEM graduate education, postdoctoral training, and academic STEM career preparation that eliminate or mitigate negative factors and promote positive practices for URMs.
- **AGEP-Knowledge Adoption and Translation (AGEP-KAT) -** Projects to expand the adoption (or adaptation) of research findings and evidence-based strategies and practices related to the participation and success of URMs in STEM graduate education, postdoctoral training, and academic STEM careers at all types of institutions of higher education.
- **AGEP-Broadening Participation Research in STEM Education (AGEP-BPR)** - Investigator initiated empirical research projects that seek to create and study new theory-driven models and innovations related to the participation and success of URMs in STEM graduate education, postdoctoral training, and academic STEM careers at all types of institutions of higher education.

Note to students and postdoctoral scholars seeking support: ***The AGEP program does not make awards to individual students or postdocs to undertake their education or research activities.*** Undergraduates and graduate students seeking support for graduate education should review the NSF Graduate Research Fellowship program (GRFP) which is a fellowship program (http://nsfgrfp.org/). Postdoctoral scholars seeking support should review the NSF postdoctoral programs summarized at www.fastlane.nsf.gov/servlet/fastlane.pdoc.DisplayProgramType. Additionally, some NSF Directorates may have special funding opportunities to support students and postdoctoral trainees that contribute to broadening participation in STEM. NSF principal investigators seeking funds to support diverse students and postdoctoral trainees are encouraged to contact their NSF program officer for information on potential opportunities.

AGEP - Graduate Research Supplements (AGEP-GRS) The Directorate for Mathematical and Physical Sciences (MPS) encourages Principal Investigators (PIs) of current MPS awards to support one (additional) Ph.D. student per award, through a partnership with the AGEP program. This opportunity is available to PIs with current MPS research awards whose institutions and/or academic units are either currently participating in the AGEP program; or whose institutions and/or academic units have participated in the AGEP program in the past (AGEP Legacy institutions). Such PIs may apply to MPS for a supplement to defray the costs for: stipend, tuition, benefits and indirect costs for one graduate research student working on the MPS-funded research. The goal is to create an opportunity to engage additional students in research, to develop a positive learning environment for students, and to improve diversity and retention at the doctoral level within the mathematical and physical sciences. For more information review the AGEP-GRS Dear Colleague Letter (NSF 13-071).

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.

- Mark H. Leddy, Lead Program Director, telephone: (703) 292-4655, email: mleddy@nsf.gov
- Alonso Thelem, Science Assistant, telephone: (703) 292-4448, email: athelem@nsf.gov
- Maurice Dues, Program Specialist, telephone: (703) 292-7311, email: mdues@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.049 --- Mathematical and Physical Sciences
- 47.076 --- Education and Human Resources

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant or Cooperative Agreement

Estimated Number of Awards: 11

Up to 5 AGEP-Transformation awards, about 2 AGEP-KAT awards, and about 4 AGEP-BPR awards are anticipated in FY 2014 pending the availability of funds and the quality of the competition.

Anticipated Funding Amount: $4,800,000 Approximately $4,800,000 in FY 2014 for new AGEP awards pending the availability of funds.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- **AGEP-Transformation** proposals are invited from strategic alliances of institutions and organizations. Alliance partners may include all types of non-profit institutions of higher education, industry, non-profit organizations, and/or Federal National laboratories (note that AGEP grant funding is limited to the organizations that are eligible for NSF support). At least one alliance partner must offer the Ph.D. in a field supported by the NSF which is included in the alliance activities. State systems of higher education may participate as a system or as individual institutions.

  AGEP-KAT and AGEP-BPR proposals are invited from all eligible individuals and organizations as described in the NSF Grant Proposal Guide.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

- **AGEP-Transformation** - An institution or organization may serve as the lead on one AGEP-Transformation collaborative proposal. An institution or organization may be a partner in multiple AGEP-Transformation projects; however the projects must be distinct and not overlap or have similar activities or education research components. **Each AGEP-Transformation alliance partner must simultaneously submit proposals as part of one collaborative proposal.** (See Chapter II, Section D.4.b for guidance in the preparation of collaborative proposals submitted as separate submissions from multiple organizations.) Institutions and organizations involved in AGEP-Transformation projects may also participate in AGEP-KAT and AGEP-BPR projects.
- **AGEP-KAT and AGEP-BPR -** There are no limits on the number of proposals that can be submitted; however the projects must be distinct and not overlap or have similar activities or education research components with proposals in other AGEP tracks.

Limit on Number of Proposals per PI or Co-PI:

There are no restrictions or limits.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposals:**
  - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.
  - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide).

B. Budgetary Information

- **Cost Sharing Requirements:** Inclusion of voluntary committed cost sharing is prohibited.
- **Indirect Cost (F&A) Limitations:** Not Applicable
- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

  February 05, 2014

  AGEP-Transformation

  February 12, 2014

  AGEP-KAT and AGEP-BPR

Proposal Review Information Criteria

Merit Review Criteria: National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions: Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements: Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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I. INTRODUCTION

Educating and training an innovative U.S. science, technology, engineering and mathematics (STEM) workforce that can maintain U.S. leadership in the global economy will require continued investment in STEM graduate education and postdoctoral training. To maintain and increase the number of highly trained STEM professionals in the U.S., the country needs to optimize the development of the diverse talent pool of U.S. citizens that are underrepresented in STEM fields.[1] African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians and other Pacific Islanders (URMs), and those with disabilities, have been underrepresented in STEM education and the workforce compared to their population in the country. Despite steady increases over the last two decades[2] the underrepresentation continues to be severe in STEM graduate education, postdoctoral training, and in STEM academic positions. The participation of URMs in academic STEM careers is particularly important given the pivotal role that faculty members and administrative leadership have as intellectual, professional, personal, and organizational role models that shape the expectations of future scientists and engineers.

Research and reports indicate that there are many factors within universities and colleges, society, and the culture of STEM fields that impact the participation and success of URM students in STEM graduate programs, postdoctoral training opportunities, and STEM faculty positions.[1,3,4,5] Therefore, better understanding of the underlying issues that impact the participation, preparation, and advancement of URMs in STEM is needed for the organizations, institutions, policy makers, and funding agencies that develop and implement programs and policies that impact URMs in STEM. The Alliances for Graduate Education and the Professoriate (AGEP) program will make strategic investments in the development and study of new models and standards for STEM graduate education, postdoctoral training, and academic STEM career preparation that eliminate or mitigate negative factors and promote positive practices for URMs. Through these investments, AGEP supports the national goal of increasing the numbers of URMs, including those with disabilities, entering and completing graduate education and postdoctoral training, and entering academic STEM careers.

The AGEP program directly supports the National Science Foundation's performance goal to "Prepare and engage a diverse STEM workforce motivated to participate at the frontiers" articulated in the *NSF Strategic Plan for 2011-2016*. AGEP is a program in the Division of Human Resource Development (HRD), which is part of the Directorate of Education and Human Resources (EHR) of the National Science Foundation (NSF).

The NSF supports research at the frontiers of knowledge, across all fields of science (including the social, behavioral and economic sciences), technology, engineering, and mathematics (STEM) and all levels of STEM education. The NSF enables innovation and discovery in STEM by educating and preparing a world class, broadly inclusive STEM workforce that is motivated and prepared to participate at the frontiers of science. NSF is committed to reaching across society to ensure that the rich diversity of the nation's populations is represented in the STEM workforce and that individuals engaged in STEM fields are trained to participate fully in the global research enterprise.

The Directorate for Education and Human Resources (EHR)

The mission of EHR is to achieve excellence in U.S. STEM education at all levels and in all settings (both formal and informal) to support the development of a diverse and well-prepared workforce of scientists, technicians, engineers, mathematicians and educators and a well-informed citizenry that has access to the ideas and tools of science and engineering. Specific EHR goals are:

1. Prepare the next generation of STEM professionals and attract and retain more Americans to STEM careers.
2. Develop a robust research community that can conduct rigorous research and evaluation that will support excellence in STEM education and that integrates research and education.
3. Increase the technological, scientific and quantitative literacy of all Americans so that they can exercise responsible citizenship and live productive lives in an increasingly technological society.
4. Broaden participation (individuals, geographic regions, types of institutions, STEM disciplines) and close achievement gaps in all STEM fields.

The Division of Human Resource Development (HRD)

The Division of Human Resource Development (HRD) serves as a focal point for NSF's agency-wide commitment to enhancing the quality and excellence of STEM education and research through broadening participation by historically underrepresented groups - minorities, women, and persons with disabilities. HRD envisions a well-prepared and competitive U.S. workforce of scientists, technologists, engineers, mathematicians, and educators that reflects the diversity of the U.S. population. HRD's mission is to grow the innovative and competitive U.S. STEM workforce that is vital for sustaining and advancing the Nation's prosperity by supporting the broader participation and success of individuals currently underrepresented in STEM and the institutions that serve them.

HRD has three strategic goals:

- **Knowledge Building:** The creation of new knowledge, innovations, and models for broadening participation in the STEM enterprise.
- **Knowledge Utilization:** The translation of knowledge, innovations, and models for broadening participation in STEM for use by stakeholders.
- **Expand Opportunities:** The expansion of stakeholder capacity to support and engage diverse populations in high quality STEM education and research programs.

The Alliances for Graduate Education and the Professoriate (AGEP) Program

The AGEP program supports the national goal of increasing the numbers of URMs, including those with disabilities, entering and completing graduate education and postdoctoral training, and entering academic STEM careers.

The AGEP program objective is: *To develop, implement, study, and disseminate innovative graduate education and postdoctoral training models designed to improve URM participation, preparation, and success*.

This program objective supports the NSF's commitment to:

- Increasing the participation and success of URMs in STEM graduate education and postdoctoral training so that they may participate and succeed in academic STEM careers at all types of institutions of higher education.
- Building the understanding and knowledge of the factors that impact the participation and success of URMs in STEM graduate education, postdoctoral training, and academic STEM careers and to share this knowledge broadly.

AGEP is particularly interested in building knowledge in areas related to the following questions:

- What are the underlying issues affecting the differential participation rates in STEM graduate education, postdoctoral training, and academic STEM careers of URMs? What additional or different factors exist for URMs who are men, women, persons with disabilities, and/or low socio-economic individuals?
- What are the experiences and interactions in graduate and postdoctoral settings that enhance or inhibit URM academic performance and encourage or discourage URM persistence to degree and career interest in the professoriate?
- What are the interpersonal, behavioral, and institutional causes of variable URM success in STEM graduate and postdoctoral training?
- What are the organizational and STEM cultural factors that make STEM graduate and postdoctoral training environments and STEM professional careers, especially academic careers, more or less welcoming and inviting to URMs?
- How does a diverse STEM graduate student body, postdoctoral trainee population, and professional workforce and academy impact STEM innovation and productivity?

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1. Council of Graduate Schools and Education Testing Service, *The Path Forward the Future of Graduate Education in the United States*, 2010.
2. National Science Foundation, National Center for Science and Engineering Statistics, *Two Decades of Increasing Diversity More than Doubled the Number of Minority Graduate Students in Science and Engineering*, 2011.
3. National Academies, *Expanding Minority Participation America's Science and Technology at the Crossroads*, the National Academies Press, Washington, D.C., 2010.
4. Poirier, Tanenbaum, Storey, Kirshstein, and Rodriguez, *The Road to the STEM Professoriate for Underrepresented Minorities: A Review of the Literature*, October 2009.
5. Association of American Universities, Graduate and Postdoctoral Education Committee, *Postdoctoral Education Survey Summary of Results*, 2005.

II. PROGRAM DESCRIPTION

This solicitation requests proposals for three different types of projects described more fully below: 1) AGEP-Transformation (AGEP-T); 2) AGEP-Knowledge Adoption and Translation (AGEP-KAT); and 3) AGEP-Broadening Participation Research in STEM Education (AGEP-BPR). Proposals that do not support the AGEP objective will be returned without review. AGEP is focused on the development of the U.S. STEM workforce; therefore research and development activities should be designed to target U.S. citizens that are racial and ethnic minorities underrepresented in STEM (African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians and other Pacific Islanders) including URMs who have disabilities. Given the growing importance of international collaborations in STEM, AGEP projects with appropriate international components are allowed and encouraged. AGEP proposals that have a clear link to the other NSF research Directorates such as disciplinary or multi-, cross-, or inter-disciplinary projects that support the education and research priorities of NSF Directorates are encouraged. These AGEP proposals may be co-reviewed and/or considered for co-funding by other NSF programs, divisions and/or directorates.

AGEP proposers are expected to integrate and leverage existing NSF programs and NSF research centers that are in place at the participating organizations into the proposed AGEP project as appropriate (see the additional review criterion). These include but are not limited to graduate and career programs such as Integrative Graduate Education and Research Traineeship (IGERT), Graduate STEM Fellows in K-12 Education (GK-12), Centers of Research Excellence in Science and Technology (CREST), ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers, and Louis Stokes Alliances for Minority Participation Bridges to the Doctorate (LSAMP-BD); as well as the undergraduate programs such as the Scholarships in Science, Technology, Engineering and Mathematics (S-STEM), Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP), Louis Stokes Alliances for Minority Participation (LSAMP), Historically Black College and Universities-Undergraduate Program (HBCU-UP), Tribal College Undergraduate Program (TCUP), and Research on Disabilities Education (RDE) alliances; as well as research centers such as Materials Research Science and Engineering Centers (MRSEC), Engineering Research Centers (ERC), and Science and Technology Centers (STC).

1) AGEP-Transformation (AGEP-T): Three and a half year (forty-two month) alliance projects to develop, implement, and study innovative evidence-based models and standards for STEM graduate education, postdoctoral training, and academic STEM career preparation that eliminate or mitigate negative factors and promote positive practices for URMs. STEM professional development more broadly may be included in projects with a strong and compelling argument. AGEP-Transformation grantees may be eligible for up to five years of additional support after the initial project based on: the outcomes of a site visit; NSF review of evaluation and performance reports; and peer review of a proposal for continuation.

Goal:

To develop, implement, and study innovative evidence-based models and standards of STEM graduate education and postdoctoral

training experiences designed to improve URM participation, preparation, and success in STEM graduate education and postdoctoral training.

Scope:

Projects involving any of the fields supported by NSF are eligible. Projects that focus on one discipline or on multi-, cross-, or inter-disciplinary areas are welcome, as well as projects that include a subset of or all STEM fields. Projects designed to increase understanding of issues related to gender and disability status in addition to URM status are also encouraged. The logic for the scope selection should be clearly articulated in the proposal, including data and information on the potential National impact on the discipline(s) of the proposed project.

Activities:

The program provides maximum flexibility to the proposer for designing and implementing AGEP-Transformation projects. However, the proposed activities are expected to be based on and justified by relevant social science and education research. The proposed activities should contribute to the production of URM STEM graduates and postdoctoral trainees as well as contribute to our understanding of issues related to URMs in STEM graduate education and/or postdoctoral training programs, and their interest in, preparation for, and success in academic STEM careers at all types of institutions. AGEP-Transformation activities are expected to achieve significant long term transformation within the STEM discipline(s) and the alliance partners. Transformational activities may include: training and skills and awareness building for STEM faculty, staff, and administrators; the development of innovative educational, training, and career opportunities and pathways among alliance partners; student support services and programs; and the review and revisions of policies and procedures related to STEM faculty, postdoctoral trainees, and graduate students.

AGEP-Transformation projects can commit *up to* 20% of the requested direct costs to providing student or postdoctoral financial support (i.e. Full or partial stipends, scholarships, fellowships, recruitment bonuses, retention bonuses, tuition and fees for their degree or training program, insurance and other benefits). Other types of incentives can be offered that are not considered direct financial support to ensure graduate student and/or postdoctoral scholar participation in the project's activities. An example may be access to travel funds for professional conferences and meetings in exchange for participation in a peer mentoring program.

Formal study of the proposed activities is a critical component of AGEP-Transformation projects which will require the involvement of social science or education research scientists in the project design and implementation. Proposals are expected to include a five-page description of the proposed study as a supplementary document in the proposal. Transformation projects are expected to make substantial contributions to the published literature on URMs and STEM graduate education, postdoctoral training, and academic STEM careers at all types of institutions of higher education.

Alliances:

Strategic alliances of partner institutions and organizations are expected and should be designed to leverage shared goals and resources and create innovative educational, training, and career opportunities and pathways. Partners may include all types of non-profit institutions of higher education, industry, non-profit organizations, and/or Federal National laboratories (note that AGEP grant funding is limited to the organizations that are eligible for NSF support). Alliances must offer a clear rationale for the partnerships as well as the value added to and by each partner. Geographic proximity alone is not justification for an alliance although it may be a strength that can be leveraged. The proposed activities should be alliance-based activities that could not be implemented without the proposed alliance.

2) AGEP-Knowledge Adoption and Translation (AGEP-KAT): Projects for up to five-years to support the adoption (or adaptation) of demonstrated strategies and practices.

Goal:

To support the dissemination to new stakeholders and/or the adoption (or adaptation) in new settings of research findings and evidence-based strategies and practices related to increasing the participation and success of URMs in STEM graduate education, postdoctoral training, and academic STEM careers at all types of institutions of higher education.

Scope:

Projects are expected to broaden the adoption (or adaptation) of demonstrated strategies and practices. The materials, tools, and practices must have been demonstrated to be effective in improving outcomes of URMs in STEM graduate education, postdoctoral training, and/or their preparation for academic STEM careers. STEM professional development more broadly may be included in projects with a strong and compelling argument. The participants in AGEP-KAT projects should be determined by the goals of the project but may be broad regional and national audiences and include faculty and administrators, professional societies, employers of STEM professionals, and others who have roles and influence in graduate education, postdoctoral training, and/or professional STEM careers, especially those that have a demonstrated track record in producing URM STEM doctorates. While there is no eligibility restriction, past and current AGEP grantees are specifically encouraged to submit proposals to share promising practices, tools, materials, and resources for which evidence demonstrating effectiveness is available. Additionally, NSF's past and current IGERT and GK-12 grantees and the Council of Graduate School's Ph.D. Completion Project and Preparing Future Faculty institutions are encouraged to participate. AGEP-KAT projects may be alliance based, but an alliance or partnership is not required. Direct student or postdoctoral financial support (i.e. full or partial stipends, scholarships, fellowships, recruitment bonuses, retention bonuses, tuition and fees for their degree or training program, insurance and other benefits) is not allowed under AGEP-KAT. Projects involving any of the fields supported by NSF are eligible. Projects that focus on one discipline or on multi-, cross-, or inter-disciplinary areas are welcome, as well as projects that include a subset of or all STEM fields.

Activities:

AGEP-KAT projects may include a range of activities designed to translate innovations, research findings, and evidence-based knowledge for adoption (or adaptation) and implementation in different settings and by new stakeholders. Projects that focus on providing a series of training sessions or workshops to share evidence-based practices are expected to include mechanisms to evaluate and document participants' utilization of the knowledge, strategies, tools, and materials and the impact of the training over time. All proposers are strongly encouraged to use technology, social networking, and other creative strategies both to implement the project and to evaluate the project's impact over time.

3) AGEP-Broadening Participation Research in STEM Education (AGEP-BPR): Three-year investigator-initiated empirical research projects.

Goal:

To advance understanding of the underlying issues affecting the participation and success of URMs in STEM graduate education, postdoctoral training, and academic STEM careers at all types of institutions of higher education.

Scope:

Behavioral, cognitive, affective, learning, and social factors as well as organizational, institutional or systemic processes that may have an impact on participation and success may be investigated using methods of sociology, psychology, anthropology, economics, statistics, and other social and behavioral science and education disciplines. Race and ethnicity should be the major variables in the analysis with gender, disability, and economic status as potential interactional variables. AGEP-BPR proposals may be jointly reviewed as appropriate with other NSF education and social science research programs. Proposals from individual researchers as well as collaborative proposals with multiple research partners are both encouraged.

The Broadening Participation Research in STEM Education track exists across several NSF diversity programs with different focus populations. Studies of non-AGEP populations may be appropriate in these programs: Louis Stokes Alliances for Minority Participation (LSAMP); Historically Black Colleges and Universities Undergraduate Program (HBCU-UP); and Tribal Colleges and Universities Program (TCUP). Additionally education research programs in the Division of Research and Learning (DRL) and Division of Undergraduate Education (DGE) may be appropriate.

Activities:

Proposers have broad flexibility in designing research projects to study URM participation and success in STEM graduate education, postdoctoral training, and academic STEM careers at all types of institutions of higher education. STEM professional development more broadly may be included in research projects with a strong and compelling argument. The results of the study are expected to be of sufficient significance to merit peer review and publication.

Note on Student and Postdoctoral Supported as Project Personnel for all AGEP proposals:

Please note the NSF requires a postdoctoral mentoring plan if the proposal includes support for postdoctoral scholars as *project personnel*. **AGEP also requires mentoring plans for graduate students** that are *project personnel* working to support the implementation, research, and management of the AGEP project (submitted as a supplemental document using the same format as the postdoctoral plan).

III. AWARD INFORMATION

Anticipated Type of Award: Continuing Grant or Standard Grant

Estimated Number of Awards: 11

Up to 5 AGEP-Transformation awards, about 2 AGEP-KAT awards, and about 4 AGEP-BPR awards are anticipated in FY 2014 pending the availability of funds and the quality of the competition.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- **AGEP-Transformation** proposals are invited from strategic alliances of institutions and organizations. Alliance partners may include all types of non-profit institutions of higher education, industry, non-profit organizations, and/or Federal National laboratories (note that AGEP grant funding is limited to the organizations that are eligible for NSF support). At least one alliance partner must offer the Ph.D. in a field supported by the NSF which is included in the alliance activities. State systems of higher education may participate as a system or as individual institutions.

  AGEP-KAT and AGEP-BPR proposals are invited from all eligible individuals and organizations as described in the NSF Grant Proposal Guide.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

- **AGEP-Transformation** - An institution or organization may serve as the lead on one AGEP-Transformation collaborative proposal. An institution or organization may be a partner in multiple AGEP-Transformation projects; however the projects must be distinct and not overlap or have similar activities or education research components. **Each AGEP-Transformation alliance partner must simultaneously submit proposals as part of one collaborative proposal.** (See Chapter II, Section D.4.b for guidance in the preparation of collaborative proposals submitted as separate submissions from multiple organizations.) Institutions and organizations involved in AGEP-Transformation projects may also participate in AGEP-KAT and AGEP-BPR projects.
- **AGEP-KAT and AGEP-BPR -** There are no limits on the number of proposals that can be submitted; however the projects must be distinct and not overlap or have similar activities or education research components with proposals in other AGEP tracks.

Limit on Number of Proposals per PI or Co-PI:

There are no restrictions or limits.

Additional Eligibility Info:

none

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.4 of the Grant Proposal Guide provides additional information on collaborative proposals.

Important Proposal Preparation Information: FastLane will check for required sections of the full proposal, in accordance with *Grant Proposal Guide* (GPG) instructions described in Chapter II.C.2. The GPG requires submission of: Project Summary; Project Description; References Cited; Biographical Sketch(es); Budget; Budget Justification; Current and Pending Support; Facilities, Equipment & Other Resources; Data Management Plan; and Postdoctoral Mentoring Plan, if applicable. If a required section is missing, **FastLane will not accept the proposal.**

Please note that the proposal preparation instructions provided in this program solicitation may deviate from the GPG instructions. If the solicitation instructions do not require a GPG-required section to be included in the proposal, insert text or upload a document in that section of the proposal that states, "Not Applicable for this Program Solicitation." Doing so will enable FastLane to accept your proposal.

Please note that per guidance in the GPG, the Project Description must contain, as a separate section within the narrative, a discussion of the broader impacts of the proposed activities. Unless otherwise specified in this solicitation, you can decide where to include this section within the Project Description.

On the **COVER SHEET** select Minority Graduate Education as the appropriate NSF program and Division of Human Resource Development (HRD) as the NSF division to be entered on the proposal cover sheet. (AGEP was previously named the Minority Graduate Education program.) Grants.gov users should refer to Chapter VI of the NSF Grants.gov Application Guide for guidance about entering NSF Unit Consideration information.

The **TITLE** should be prefaced with an abbreviation identifying the type of AGEP proposal being submitted:

- AGEP-T - for AGEP Transformation proposals
- AGEP-KAT - for AGEP Knowledge Adoption and Translation proposals
- AGEP-BPR - for AGEP Broadening Participation Research in STEM Education proposals

The one-page **PROJECT SUMMARY** should:

- In the OVERVIEW please describe the proposed project activities. For Transformation and BPR proposals also identify the theory, concepts or framework; research question(s) and hypotheses; target research subjects; and data analysis techniques.
- Identify all partnering organizations that will be involved in the project.
- Be sure to address both NSF review criteria: INTELLECTUAL MERIT and BROADER IMPACTS in the two separate text boxes.

REFERENCES CITED: All references cited in the Project Summary and Project Description must be listed in this section. If no references are cited please submit "no references cited" in this section.

BIOSKETCHES: Biosketches for the PI, Co-PI(s) and senior project personnel are required. Biosketches **must** follow the NSF guidelines outlined in the NSF Grant Proposal Guide or NSF Grants.gov Application Guide and may not be longer than 2 pages.

BUDGET AND BUDGET JUSTIFICATION: Budgets should be in NSF format and include up to three pages of budget justification. The budget justification should be in narrative form and include detailed explanations for each line item with budget resources listed in the budget. Each partner in a collaborative proposal must submit a separate budget and budget justification. Information about what may or may not be included in the budget or budget justification is outlined in the NSF Grant Proposal Guide and NSF Grants.gov Application Guide. A budget must also be submitted for each proposed subaward.

CURRENT AND PENDING SUPPORT: Information on current and pending grant support for the PI and Co-PI(s) is required. Follow the guidelines outlined in the NSF Grant Proposal Guide for this section.

FACILITIES, EQUIPMENT AND OTHER RESOURCES: This section should include details about facilities, equipment, or any other resources necessary for completion of the project. As per the PAPP Guide Part I: *Grant Proposal Guide (GPG)* Chapter II.C.2.i, the

description of resources should be narrative in nature and must not include quantifiable financial information.

SUPPLEMENTARY DOCUMENTS: Include all required supplementary documents listed in the Grant Proposal Guide or NSF Grants.gov Application Guide. In addition the allowable supplementary documents listed in the guidelines, AGEP proposals are expected to include the following documents as appropriate:

- AGEP-Transformation proposals are expected to include a five-page description of the proposed social science or education research study that will be done as part of the project. The content of this research description is described later in this section under the AGEP-Transformation header.
- All AGEP proposals can include **letters of commitment** from significant partners in the proposal. The letters of commitment should indicate what the writer is committing to do and/or contribute as part of the proposed project. General letters of support for the project will not be accepted.
- All AGEP proposals must include **mentoring plans** for postdocs *and graduate students* directly supported on the proposed project as personnel.

PROJECT DESCRIPTION: The details for the 15 page project description for each type of AGEP proposal are below. Note that all NSF proposals must address both NSF review criterion in the text of the project description: INTELLECTUAL MERIT and BROADER IMPACTS. Please note that per guidance in the GPG, the Project Description must contain, as a separate section within the narrative, a discussion of the broader impacts of the proposed activities.

All AGEP proposals are expected to include in their project description a project evaluation plan, reporting on prior related NSF support, and an outreach and communication plan. Greater detail is provided about these sections following the information specific to each of the three AGEP proposal types.

1) AGEP-Transformation (AGEP-T)

Background and Context: Baseline data and contextual information about the institutions and organizations involved in the alliance are necessary for NSF and the peer reviewers to determine the potential impact of the proposed project and past performance. Data supporting the need for the project must be provided. Describe the alliance's STEM graduate students, postdoctoral trainees, and faculty by gender, race and ethnicity, and STEM discipline for at least three years. Include disability status when available. Other appropriate data such as results from student, faculty and industry surveys, job placement data, and analysis of exit interviews can also be included.

Goals, Objectives, and Activities: Describe the goals and objectives of the project and link these to the proposed activities including references to the relevant research supporting the proposed activities and strategies. The proposed activities are expected to be alliance-based activities that could not be implemented without the proposed alliance. Activities should be described in enough detail that NSF and peer reviewers can evaluate the quality of the proposed strategies. The proposal should describe how the alliance will define and track "AGEP" students, postdoctoral trainees, and faculty, and other participants and beneficiaries of the project.

AGEP-Transformation projects can commit *up to* 20% of the requested direct costs to providing graduate student or postdoctoral financial support to URM U.S. citizens (i.e. Full or partial stipends, scholarships, fellowships, recruitment bonuses, retention bonuses, tuition and fees for their degree or training program, insurance and other benefits). If direct financial support is requested it must provide URM recipients with financial support packages equitable with other similar students and postdoctoral scholars and care should be taken to ensure that the support does not isolate or otherwise negatively impact the individuals' education or training. The proposal should include the following information: 1) The number of U.S. URMs that will be supported at each alliance partner during the project and a statement that the requested support does not supplant existing support funds; 2) A description of how the recipients will be supported after the AGEP funding ends through the completion of their program; 3) Describe the need and logic for the proposed financial support (i.e. is the support designed to meet the project's objectives related to recruitment, retention, preparation, and/or interest in academic careers); 4) The mechanism for collecting demographic data and tracking the recipients during their educational or training program and into career; and 5) The total amount of direct financial support requested in the budget justification (add up the amounts entered in the budget for direct graduate student or postdoctoral financial support which may be in the "participant support", "other", and "personnel" line items depending on your institutional classification of the support). *See additional review criteria in section VI.*

Alliance: The logic of the proposed alliance and the roles of each partner must be clearly described in the proposal. It is expected that all partner institutions will have substantial roles in the planning and implementation of the activities under the grant, including in the management and evaluation. Alliance partnerships must already be established at the time of submitting the proposal. Each partner requesting grant support from the AGEP program must simultaneously submit proposals as part of one collaborative proposal (See Chapter II, Section D.4.b of the GPG for guidance in the preparation of collaborative proposals). Subawards cannot be used for partnering organizations in an alliance.

Sustainability and Commitment: Include a description of your plans to sustain AGEP activities that have proven effective after the project ends. Evidence of institutional and leadership commitment to broadening participation should be included in the proposal or in letters of commitment. Examples of institutional commitment might include the establishment of administrative offices or positions to support URM student success and talent development, and commitment to consider changes in policies to institutionalize improvements such as modifying tenure, promotion, and salary decisions to reward faculty for URM talent development, as well as other possibilities. *See additional review criteria in section VI*.

Research Description: AGEP-Transformation proposals are expected to **include a five-page supplementary document** devoted to the description of the proposed quantitative and/or qualitative social science or education research study that complements and is clearly related to the Transformation project description. The research description must include relevant information including: 1) the conceptual framework for the study; 2) a discussion of the theory or theories grounding the research and the testable hypotheses; 3) the proposed methods to test the hypotheses; 4) the expected findings; and 5) to what extent the results and data will be disaggregated for multiple characteristics such as gender, disability, and foreign-born or foreign-trained status, in addition to race and ethnicity in order to answer the proposed research questions. The research description is expected to illustrate how the study will contribute to the knowledge base of URMs in STEM graduate education, postdoctoral training, and/or STEM professional careers especially STEM academic careers. It should be clear in the proposal which team members will undertake the study and their relevant social science or education research qualifications and skills to undertake the proposed research study. Proposers are encouraged to collaborate with experts in social science and/or education research, from within the alliance partner institutions or institutions that are not part of the alliance, to propose a competitive research study linked to the proposed Transformation project. Be sure to incorporate the research study into your data management plan description (EHR guidelines http://www.nsf.gov/bfa/dias/policy/dmpdocs/ehr.pdf).

Management: Clearly describe the project responsibilities and level of effort on the project of each member of the team (PIs and other key personnel, including those for whom no funding is requested). The team must include appropriate social science and/or education research expertise to support the research component as well as the implementation of the AGEP-Transformation project. Include a project **communication plan** for the management team that includes how shared decision making across the alliance will

be accomplished and how project information will be shared with stakeholders that are not part of the management team (i.e. all STEM faculty, senior leadership, etc.). AGEP-Transformation projects are required to have an Internal Steering Committee (ISC) to help the management team with project implementation, resolve project issues, and ensure that the project is on track for meeting project goals. The roles and responsibilities of the committee should be described in the proposal. The size and composition of the committee will depend on the design of the project. ISC members could include senior STEM faculty, institutional staff in graduate and postdoctoral offices, offices that might institutionalize activities, and offices that provide data and other resources to the project. This committee should meet frequently throughout the project with the project management team.

AGEP-Transformation projects may elect to have an External Advisory Committee (EAC) to provide an avenue for getting **external advice** from experts and educational leaders on the project implementation. Members of the EAC could be selected strategically based on the project's goals and could include leaders from institutions of higher education, industry, national labs, and/or experts in areas relevant to the project activities. An EAC normally meets once a year to provide advice to the project management team, identify opportunities, make suggestions for sustainability, and to meet with the senior alliance leadership and other stakeholders to help communicate the project's impact and outcomes.

Timeline: Include a forty-two month project timeline with major objectives and milestones. The timeline should include a two-day site visit sometime between project month 32 and 34. Eligibility for continued support after the initial forty-two month project will be determined by NSF through review of evaluation and performance reports, the site visit, and peer review of proposals for continued support. If encouraged by NSF, a proposal for continuation would be due to NSF approximately four months after the site visit.

2) AGEP- Knowledge Adoption and Translation (AGEP-KAT)

Background and Context: Describe the need and value of the project including relevant data and references and the potential impact of the project.

Goals, Objectives, and Activities: Describe the goals and objectives of the project and link these to the proposed activities. Include references to the evidence of effectiveness of the practices and strategies to be disseminated or adapted. Activities should be described in enough detail that NSF and peer reviewers can evaluate the quality and appropriateness of the proposed strategies for meeting the project goals. AGEP-KAT projects that are focused on training workshops should describe how they will provide support to the participants after the workshop, and document the participants' utilization of the knowledge, strategies, tools, and materials. Direct student or postdoctoral financial support (i.e. full or partial stipends, scholarships, fellowships, tuition and fees, insurance and other benefits) is not allowed under AGEP-KAT except for students and postdoctoral trainees serving as *project personnel* implementing the AGEP-KAT project. The proposal should describe how the AGEP-KAT project will define and track "AGEP" students, postdoctoral trainees, and faculty, and other participants and beneficiaries of the project.

Sustainability and Commitment: Include a description of your plans to sustain AGEP-KAT activities that have proven effective after the project ends. Evidence of institutional and leadership commitment to broadening participation should be included in the proposal or in letters of commitment for adoption or adaptation projects. *See additional review criteria in section VI*.

Management: Clearly describe the responsibilities and level of effort on the project for each member of the team (PIs and other key personnel, including those for whom no funding is requested). Your management plan may include steering committees and external advisory committees as appropriate for your project. Include a timeline for the project with major objectives and milestones.

3) AGEP-Broadening Participation Research in STEM Education (AGEP-BPR)

Research Description: AGEP-BPR projects are expected to focus on URMs in graduate education, postdoctoral training, and academic STEM careers at all types of institutions of higher education. Therefore race and ethnicity should be the major variables in the analysis with gender and disability status as potential interactional variables. The proposal should address whether the design is premised on special needs and interests due to gender, economic status, or disability in the analysis and to what extent data will be disaggregated for multiple characteristics. AGEP expects that BPR proposals will have strong research designs that will produce rigorous, cumulative, reproducible, and usable findings. BPR proposals are expected to be grounded in a body of literature and are expected to produce high-quality, peer-reviewed research on broadening participation in STEM.

The description of the research should include:

- The disciplinary (or multi-, cross-, inter- disciplinary) and conceptual framework for the study.
- The theory or theories grounding the research or the concepts or framework of interest.
- The proposed research questions and/or testable hypotheses that reflect the current state of knowledge in the area and the theory or conceptual framework being used.
- The types of data to be collected and methods for data collection.
- Detailed discussion of the methods that will be used to answer the research questions and test the hypotheses. If a population sample is used, this should be described along with the rationale for sample selection, and the project's access to the sample population.

Other items to include in the Project Description for all AGEP proposals:

Evaluation Plans

All AGEP proposals must include a plan for an independent evaluation of the proposed project. A project is expected to track and report in detail the accomplishment of proposed targets for broader impacts and intellectual merit. The budget must include sufficient resources for evaluation and assessment. The evaluation plan must be appropriate for the scope of the project, include evaluation questions that relate to project goals, and propose evaluation activities, indicators and outcomes aligned to the evaluation questions. The evaluation processes should rely on a suitable mix of qualitative and quantitative measures. When appropriate and affordable, a project is encouraged to use experimental and/or quasi-experimental designs that may include control, treatment or comparison groups. The proposal should include a plan to communicate information to the field about the project components the independent evaluation finds to be effective and ineffective.

In addition to standard evaluation questions, an AGEP-T project evaluation should demonstrate a clear definition of the model development or replication being evaluated, the expected project outcomes, and the potential for model replication or scale up. Formative evaluation of an AGEP-T project should include methods for documenting progress and for providing feedback to the project personnel that allows for continuous improvement or project activities. Summative evaluation of an AGEP-T project focuses on the influence of the project on the expected outputs, outcomes and impacts, and should include an assessment of the contribution of the project to the field.

Formative assessment of an AGEP-KAT project may include, but is not limited to, such activities as documenting and describing the project activities and how they have been improved during the course of the project; appropriate selection of participants and their level of project engagement; and the fidelity and integrity of the project activities. Summative evaluation of an AGEP-KAT project should include an assessment of the contribution of project results to the field's knowledge base and how successful the project was

at adoption, translation and communication.

Formative evaluation of an AGEP-BPR project may include, but is not limited to, such activities as documenting and describing the operations of the project; appropriate selection of research subjects; and the fidelity and integrity of the research design and measures. Summative evaluation of an AGEP-BPR project should include an assessment of the contribution of project results to the field's knowledge base.

Evaluators are expected to adhere to the American Evaluation Association's Guiding Principles for Evaluators (http://www.eval.org/Publications/GuidingPrinciples.asp) and project evaluations are expected to be consistent with the standards established by the Joint Committee on Standards for Educational Evaluation (http://www.jcsee.org/program-evaluation-standards/program-evaluation-standards-statements). The following references may be helpful in designing an evaluation plan:

- The 2010 User-Friendly Handbook (http://www.westat.com/Westat/pdf/news/UFHB.pdf)
- User-Friendly Handbook for Mixed Method Evaluations (NSF 97-153) (www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf97153)
- Framework for Evaluating Impacts of Broadening Participation Projects (www.nsf.gov/od/broadeningparticipation/framework_evaluating_impacts.jsp)
- Measuring Diversity: An Evaluation Guide for STEM Graduate School Leaders(http://www.nsfagep.org/files/2011/04/MeasuringDiversity-EvalGuide.pdf)
- Evidence: An Essential Tool - Planning for and Gathering Evidence using the Design-Implementation-Outcomes (DIO) Cycle of Evidence (NSF 05-31) (www.nsf.gov/pubs/2005/nsf0531/nsf0531.pdf)
- Reframing Evaluation: Defining an Indigenous Evaluation Framework(http://www.aihec.org/programs/documents/NSF-TCUP/DefiningIndigenousEvaluationFramework_LaFrance-NicholsNov2010.pdf)

Results from Prior NSF Support

If any prospective PI or Co-PI has received NSF funding for ***activities related to the proposed AGEP project*** within the past five years, a brief description of project(s) and outcome(s) must be provided in sufficient detail to enable reviewers to assess the value of results achieved. Prior support should be identified by NSF award number, amount, period of support, title, summary of results, publications, and products and their availability. Descriptions of prior NSF support must be included in the 15-page project description.

Outreach and Communication

All three AGEP proposal types are expected to include a plan for communicating information and findings of the AGEP project including both successes and failures. The plan should demonstrate that the proposer is aware of appropriate channels for sharing results from the project, such as specific peer-reviewed journals and publications, web sites and social media avenues, and/or professional conferences. AGEP-Transformation and AGEP-KAT projects must include the development and maintenance of an AGEP project website. All AGEP projects may also be asked to cooperate with the Broadening Participation in STEM Resource Network to share project information. The outreach and communication plan must be included in the 15-page project description.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

AGEP-Transformation normal award size will be up to $1,750,000 for 42 months (approximately $500,000 per year including direct and indirect costs) depending on the scope of the proposed project. Factors impacting the scope of the project may include: the variety and number of disciplines involved; the number and geographic location of the alliance partners; difficulty of implementing the proposed activities; and the potential impact for increasing, above and beyond current trends the Nation's racial and ethnic diversity of STEM graduate student enrollees and completers and/or postdoctoral trainees and completers. AGEP-Transformation projects can commit *up to* 20% of the requested direct costs to providing graduate student or postdoctoral financial support to URM U.S. citizens (i.e. full or partial stipends, scholarships, fellowships, recruitment bonuses, retention bonuses, tuition and fees for their degree or training program, insurance and other benefits).

AGEP-Knowledge Adoption and Translation normal award size will range from $200,000 to $350,000 per year (including direct and indirect costs) for up to five years, depending on the scope of the proposed project. Factors impacting the scope of the project may include: the variety and number of disciplines involved; the number and geographic location of partners if any; difficulty of implementing the proposed activities; and the potential impact for increasing, above and beyond current trends the Nation's racial and ethnic diversity of STEM graduate student enrollees and completers and/or postdoctoral trainees and completers. Direct graduate student or postdoctoral financial support (i.e. full or partial stipends, scholarships, fellowships, recruitment bonuses, retention bonuses, tuition and fees for their degree or training program, insurance and other benefits) is not allowed under AGEP-KAT.

AGEP-BPR proposals may request up to $525,000 for three years (an average of $175,000 per year including direct and indirect costs). AGEP-BPR proposals proposing to develop and study potentially transformative high-risk models should contact the program office before proposing budgets above this level.

AGEP-Transformation projects should budget for two to three key project staff including the PI and lead researcher to attend a three-day grantee meeting in the Washington, DC area every other year of the project. AGEP-KAT and AGEP-BPR projects should budget for at least one person to travel to the annual meeting.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

  February 05, 2014

  AGEP-Transformation

  February 12, 2014

  AGEP-KAT and AGEP-BPR

D. FastLane / Grants.gov Requirements

For Proposals Submitted Via FastLane:

To prepare and submit a proposal via FastLane, see detailed technical instructions available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

For Proposals Submitted Via Grants.gov:

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: http://www.grants.gov/web/grants/applicants.html. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

Proposers that submitted via FastLane are strongly encouraged to use FastLane to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in the GPG as Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: http://nsf.gov/bfa/dias/policy/merit_review/.

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Investing in Science, Engineering, and Education for the Nation's Future: NSF Strategic Plan for 2014-2018*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

A. Merit Review Principles and Criteria

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (GPG Chapter II.C.2.d.i. contains additional information for use by proposers in development of the Project Description section of the proposal.) Reviewers are strongly encouraged to review the criteria, including GPG Chapter II.C.2.d.i., prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
    a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
    b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria

AGEP-Transformation:

- Is there strong and reliable evidence (cited in the proposal) supporting the potential effectiveness of the proposed strategies and activities, including direct student financial support if requested?
- Are the proposed strategies and activities alliance-based?
- Are the proposed strategies and activities innovative and potentially transformative?
- Are the appropriate organizational and institutional leaders of the alliance partners committed to the project implementation and adequately involved in the project to ensure successful implementation?
- Does the proposed project coordinate with and build on existing NSF projects at the alliance partners?
- Is there a plan for sustaining the activities, including any direct student financial support if requested, that are found to be effective after the NSF project ends?
- Does the proposed research contribute to the knowledge base on URM participation and success in STEM graduate education and/or postdoctoral training and preparation for academic careers in significant and important ways?

AGEP-KAT:

- Is there strong and reliable evidence (cited in the proposal) that supports the effectiveness of the strategies and activities that will be disseminated, adopted, and/or adapted?
- Are the appropriate organizational and institutional leaders of the alliance partners committed to the project implementation and adequately involved in the project to ensure successful implementation?
- Is there a plan for sustaining the activities that are found to be effective after the NSF project ends?

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review.

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will be completed and submitted by each reviewer. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF strives to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new awardees may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer's recommendation.

After programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications. After an administrative review has occurred, Grants and Agreements Officers perform the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process).

B. Award Conditions

An NSF award consists of: (1) the award notice, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award notice; (4) the applicable award conditions, such as Grant General Conditions (GC-1)*; or Research Terms and Conditions* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award notice. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Special Award Conditions:

All AGEP-Transformation, AGEP-KAT, and AGEP-BPR grantees will be required to cooperate and participate in program-level evaluation activities by NSF and/or third party contractors.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). Within 90 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the

nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Additional Reporting Requirements: Additional data may be requested from AGEP grantees before awards are made and periodically during the project period for monitoring and program evaluation purposes pending approval from the Office of Management and Budget (OMB).

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Mark H. Leddy, Lead Program Director, telephone: (703) 292-4655, email: mleddy@nsf.gov
- Alonso Thelem, Science Assistant, telephone: (703) 292-4448, email: athelem@nsf.gov
- Maurice Dues, Program Specialist, telephone: (703) 292-7311, email: mdues@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this website by potential proposers is strongly encouraged. In addition, "NSF Update" is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Grants Conferences. Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "NSF Update" also is available on NSF's website at https://public.govdelivery.com/accounts/USNSF/subscriber/new?topic_id=USNSF_179.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this mechanism. Further information on Grants.gov may be obtained at http://www.grants.gov.

Related Programs:

The National Science Foundation and the Institute of Education Sciences in the U.S. Department of Education developed *Common Guidelines for Education Research and Development*. The *Guidelines* describe six types of research studies that can generate evidence about how to increase student learning. Research types include those that generate the most fundamental understandings related to education and learning; examinations of associations between variables; iterative design and testing of strategies or interventions; and assessments of the impact of a fully-developed intervention on an education outcome. For each research type, there is a description of the purpose and the expected empirical and/or theoretical justifications, types of project outcomes, and quality of evidence.

The *Guidelines* publication can be found on the NSF website with the number NSF 13-126 (http://www.nsf.gov/pubs/2013/nsf13126/nsf13126.pdf). A set of FAQs regarding the *Guidelines* are available with the number NSF 13-127(http://www.nsf.gov/pubs/2013/nsf13127/nsf13127.pdf). Grant proposal writers and PIs are encouraged to familiarize themselves with both documents and use the information therein to help in the preparation of proposals to NSF.

Related URLs

National Science Foundation

- Integrative Graduate Education and Research Traineeship Program (IGERT) http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=12759&org=DGE&from=home and http://www.igert.org/
- NSF Graduate Research Fellowship Program (GRFP) http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=6201 and http://www.nsfgrfp.org/
- AGEP-Graduate Research Supplements by the Directorate for Mathematical and Physical Sciences http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf13071&org=NSF
- Directorate for Engineering's Graduate Research Diversity Supplements www.nsf.gov/funding/pgm_summ.jsp?pims_id=503277
- Cultural Anthropology Research Experience for Graduate Students Supplements http://www.nsf.gov/pubs/2008/nsf08019/nsf08019.jsp
- NSF Postdoctoral Research Fellowships and Other Programs https://www.fastlane.nsf.gov/servlet/fastlane.pdoc.DisplayProgramType

- Centers of Excellence for Materials Research and Innovation (previously Materials Research Science and Engineering Centers) http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5295&org=NSF and http://www.mrsec.org/
- Engineering Research Centers Association http://www.erc-assoc.org/
- Science and Technology Centers http://www.nsf.gov/od/oia/programs/stc/
- Nanoscale Science and Engineering Centers http://www.nsecnetworks.org/
- National Center for Ecological Analysis and Synthesis http:// www.nceas.ucsb.edu/
- Centers for Chemical Innovation http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13635

National Institutes of Health, Training and Career Awards for graduate students, postdoctoral fellows, clinician-scientists, scientists transitioning to independence and independent scientists http://www.nigms.nih.gov/Training/TrainingCareerAwards.htm

Department of Energy, The Office of Science Graduate Fellowship Program http://scgf.orau.gov/index.html

Department of Education

- Promoting Post baccalaureate Opportunities for Hispanic Americans Program http://www2.ed.gov/programs/ppoha/index.html
- Title III Part B, Strengthening Historically Black Graduate Institutions Program http://www2.ed.gov/programs/idueshbgi/index.html
- Master's Degree Programs at Historically Black Colleges and Universities http://www2.ed.gov/programs/hbcumasters/funding.html
- Master's Degree Programs at Predominantly Black Institutions http://www2.ed.gov/programs/pbimasters/index.html
- Graduate Assistance in Areas of National Need http://www2.ed.gov/programs/gaann/index.html
- Jacob K. Javits Fellowships Program http://www2.ed.gov/programs/jacobjavits/index.html

State Department, U.S. Student Program http://fulbright.state.gov/grants/student-program/u-s-citizen.html

American Association of Universities (AAU), Summary of Graduate and Postdoctoral Programs http://www.aau.edu/WorkArea/DownloadAsset.aspx?id=10424

Institute for Broadening Participation, Pathways to Science http://www.pathwaystoscience.org/index.asp

Council of Graduate Schools (CGS) http://cgsnet.org/

National Postdoctoral Association (NPA) http://www.nationalpostdoc.org/

Ethics Core Digital Library http://nationalethicsresourcecenter.net/index.php/home

Ford Foundation Fellowship Program http://sites.nationalacademies.org/PGA/FordFellowships/index.htm

Alfred P. Sloan Foundation Graduate Scholarship Programs http://www.nacme.org/sloan/Sloan.aspx?pageid=30

Southern Regional Education Board Doctoral Scholars Programs http://www.sreb.org/page/1113/types_of_awards.html

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The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

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Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at http://www.nsf.gov

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PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Office of the General Counsel
National Science Foundation
Arlington, VA 22230

X. APPENDIX

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