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NSF Boosting Research Ideas for Transformative and Equitable Advances in Engineering (BRITE)

PROGRAM SOLICITATION
NSF 22-559

REPLACES DOCUMENT(S):
NSF 21-568

National Science Foundation

Directorate for Engineering
Division of Civil, Mechanical and Manufacturing Innovation

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

April 25, 2022

IMPORTANT INFORMATION AND REVISION NOTES

Revision Notes

Revised language to indicate that investigators are allowed to submit one detailed collaborator letter from a significant contributor if appropriate. All other collaborator letters must follow the PAPPG guidance regarding letters of collaboration (2 sentence format).

Revised language to indicate that postdoctoral support might be appropriate for Relaunch and Pivot tracks.

PIs interested in submitting to the Synergy, Pivot, or Fellow track are strongly encouraged to assess the suitability of their topic by emailing a one-page project summary to brite@nsf.gov prior to submission.

Important Information

Innovating and migrating proposal preparation and submission capabilities from FastLane to Research.gov is part of the ongoing NSF information technology modernization efforts, as described in Important Notice No. 147. In support of these efforts, proposals submitted in response to this program solicitation must be prepared and submitted via Research.gov or via Grants.gov, and may not be prepared or submitted via FastLane.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 22-1), which is effective for proposals submitted, or due, on or after October 4, 2021.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

NSF Boosting Research Ideas for Transformative and Equitable Advances in Engineering (BRITE)

Synopsis of Program:

The National Science Foundation's strategic goals are to expand knowledge and build capacity for a diverse science and engineering workforce[1][2]. The goal of this solicitation is to enable and create opportunities to advance scientific discoveries and new research using a variety of approaches that harness the national talent ecosystem of experienced faculty. Recognizing that a successful faculty research career is neither linear nor continuous, this BRITE solicitation seeks proposals that enable experienced researchers and scholars (tenured or equivalent) to forge new directions or to enter new fields by capitalizing or branching out of their established knowledge domains.

All BRITE proposals are expected to address fundamental research that creates new knowledge in one or more CMMI program areas. BRITE proposals must identify key research outcomes and describe the research plans for the period of funding sought. Although collaborative proposals are not permitted and will be returned without review, the PI can include a collaborator in a limited role as senior personnel. The solicitation includes four funding tracks: Synergy, Pivot, Relaunch, and Fellow in support of experienced scientists and engineers (tenured or equivalent).

- The BRITE **Synergy Track** is intended to support synthesis research borne out of a disaggregated and accumulated body of prior research outcomes that remain unstudied and unprobed to forge or conceptualize a novel direction, methodology, paradigm, or outcome that is more than the sum of the parts.
- The BRITE **Pivot Track** is intended to enable researchers to quickly adapt to the fast-moving pace of research and create new knowledge and research products in their field by infusing new concepts from a different discipline or sub-field.
- The BRITE **Relaunch Track** is intended to support tenured or equivalent faculty, who have had a pause in research activity, to relaunch back into active research, and to diversify the experiences of the nation's STEM researchers.
- The BRITE **Fellow Track** is intended to support established tenured or equivalent researchers who have demonstrated impact beyond scientific output to request extended time and freedom to use their intellectual creativity to explore divergent, bold, and ambitious research ideas where the expected scientific outcomes are highly uncertain and, therefore, high-risk.

PIs interested in submitting to the Synergy, Pivot, or Fellow track are strongly encouraged to assess the suitability of their proposal topic prior to submission. All funded projects will form an NSF BRITE cohort and investigators will participate in NSF-organized convenings in the form of an annual review.

The expected funding ranges for BRITE Research Grants are:

$100,000-$200,000 per year

The award duration is 2 years for the BRITE Synergy track awards, 3 years for the BRITE Pivot and Relaunch tracks, and 5 years for the Fellow track awards. Variations from the typical durations will be considered with a clearly stated justification.

BRITE proposals responding to this solicitation must include additional sections within the 15-page Project Description entitled: Past Contributions, Research Approach and Research Plan, Track Relevance, Outcomes, and Diversity, Equity, and Inclusion Plan. Please see "Full Proposal Preparation Instructions" for additional details. Investigators who do not align with one of the tracks are not eligible for this solicitation.

FURTHER INFORMATION: An informational webinar about this solicitation will be held on February 3rd, 2022 at 2:00 PM ET. Details about how to register and join this webinar are provided below.

Register in advance for this webinar: https://nsf.zoomgov.com/webinar/register/WN_Xi7DlWR-TAqEdrDwpMJduw

Meeting ID: 161 579 3035

Passcode: 885003

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.

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

- 47.041 --- Engineering

Award Information

Anticipated Type of Award: Standard Grant

Estimated Number of Awards: 30

Synergy, Pivot, Relaunch – about 8-10 awards per track

Fellow – 2-5 awards

Anticipated Funding Amount: $10,000,000

Anticipated funding is $10,000,000.

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds. The total amount awarded in future years will depend on the availability of funds.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.

- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.

Who May Serve as PI:

The PI must hold a tenured faculty appointment at the Associate/Full Professor rank or equivalent at an organization that is eligible to submit as described under "Who May Submit Proposals." Co-PIs are not allowed on any of the tracks. Separately submitted collaborative proposals are not allowed.

Principal Investigators are limited to one active BRITE award at a time.

BRITE Fellows may not currently hold or accept fellowships of equal caliber (i.e. similar intent, funding level, and or prestige such as the Vannevar Bush Faculty Fellows award) concurrently with a BRITE Fellow award.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or co-PI: 1

An individual may serve as PI on only one BRITE proposal in a given track. This limitation does not include receiving a subaward as part of another BRITE proposal. There are no restrictions or limits on serving as Senior Personnel. Co-PIs are not allowed on any of the tracks.

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 Research.gov: *NSF Proposal and Award Policies and Procedures Guide* (PAPPG) guidelines apply. The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.
  - 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: https://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. submitter's local time):

  April 25, 2022

Proposal Review Information Criteria

Merit Review Criteria:

National Science Board approved criteria. Additional merit review criteria 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:

Standard NSF reporting requirements apply.

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I. INTRODUCTION

Recognizing that a successful faculty research career is neither linear nor continuous, this solicitation seeks proposals that enable experienced researchers to forge new directions or to enter new fields by capitalizing or branching out their established knowledge domains. This can be accomplished by synthesizing an accumulation of disaggregated prior work, by venturing into a new research area, revitalizing an existing research area because of a hiatus, through immersion in a new field, or by curiosity-driven explorations. This solicitation encourages novel research ideas borne out of the synergy of accumulated knowledge and products to make significant contributions in the field. Researchers are encouraged to take a risk and venture outside their focused expertise. This solicitation invites proposals from the broad spectrum of highly trained scientific researchers to ensure diversity of thought in innovation. A highly trained researcher may need to launch a new research platform or pivot to a new area. This includes highly trained researchers that may be re-entering after a hiatus [3][4][5][6][7][8][9]. BRITE PIs will actively engage in advancing their chosen new fields, serving as role models for STEM students, and serving the nation in addressing current and future socio-scientific challenges. This solicitation seeks to harness new research ideas from the diverse and highly skilled scientific workforce in engineering fields that NSF supports, especially where there may have been an interruption. The solicitation also invites curiosity-driven research ventures for a sustainable period that have the potential to transform a field or create an entirely new field.

This 2022 NSF BRITE solicitation consists of four tracks:

BRITE Synergy Track

BRITE Pivot Track

BRITE Relaunch Track

BRITE Fellow Track

Principal investigators may, with compelling justification, request more than 2 months of salary per year. Investigators applying to the Fellow track may request up to six months of salary support in a given year but no more than twelve months over the first three years of the award.

NSF is committed to research and development that derives expertise from and provides broad benefits to a diverse public. The program encourages proposals from, and meaningful partnerships with, Minority Serving Institutions (MSIs), which include Historically Black Colleges and Institutions (HBCUs), Tribal Colleges and Universities (TCUs), Hispanic Serving Institutions (HSIs), and other institutions that enroll a significant percentage of underrepresented racial/ethnic minority students as defined by the U.S. Department of Education and other historically marginalized populations. These institutions include Predominantly Black Institutions, Alaska Native-Serving Institutions, Native Hawaiian-Serving Institutions, Asian American and Pacific Islander Serving Institutions, as well as organizations that reflect, support, and include a diverse public including women, LGBTQ+, African Americans, Hispanics, American Indians, Alaska Natives, Native Hawaiians, Native Pacific Islanders, and persons with disabilities.

II. PROGRAM DESCRIPTION

The guiding rationale of the NSF CMMI BRITE funding opportunity is that leveraging prior science and engineering outcomes, harnessing talent from the broad scientific research community, enabling time for reflection and deliberation, including learning new skills and scientific immersion in new areas, is a valuable and

essential path leading to scientific and technological innovation.

The goals of this solicitation will be accomplished through 4 tracks: BRITE Synergy, BRITE Pivot, BRITE Relaunch, and BRITE Fellow. A proposal submitted to any of the four tracks will be a research proposal that advances the field, with high intellectual merit and broader impacts as determined by external review in accordance with the standard NSF review criteria and procedures. Proposals submitted in response to this solicitation must include sections on how the proposal aligns with the selected track, the research approach and research plan, and a description of the intended scientific outcomes and broader impacts of the research activities. All four tracks may compel the principal investigator to seek a stimulating environment through sabbatical leave or other leave outside of one's academic institution, which may include spending time in a host institute or national lab. Note that while this type of activity is permitted, it is not required.

This NSF BRITE solicitation supports research that aligns with any of the CMMI impact areas. BRITE proposals should be distinguishable from a typical unsolicited proposal to a core program due to the nature of the intended track. *Proposals that are outside the bounds of CMMI interest areas will be returned without review.* Investigators interested in submitting to the Synergy, Pivot, and Fellow tracks are strongly encouraged to assess the suitability of their topic by emailing a one-page project summary to brite@nsf.gov prior to submission.

TRACKS

Synergy track: The BRITE Synergy track seeks synthesis proposals that will lead to new comprehensive research outcomes borne out of a disaggregated and accumulated body of prior research outcomes that remain unstudied and unprobed to forge or conceptualize a novel direction, methodology, paradigm, or outcome that is more than the sum of the parts. Research synthesis refers to the systematic process of distilling and integrating scientific methods, outcomes, data, and other research elements to draw new conclusions and identify new directions[10][11]. The BRITE Synergy track seeks synthesis proposals that will lead to new research outcomes borne out of a disaggregated and accumulated body of prior research outcomes that remain unstudied and unprobed to forge or conceptualize a novel direction, methodology, paradigm, or outcome that is more than the sum of the parts. NSF invites proposals that include and go beyond integrative studies and meta-synthesis, as the objective is to carry out research that leads to new outcomes. The focus should be on the synthesis of knowledge as may be borne out of research discontinuity together with experience that is gained over a substantial span of one's career, and the deliverable should be of general scientific value to the field. Proposals that seek to extend ongoing research projects ('research continuity') are not suitable for BRITE. The proposal must describe the scientific thought process, conjecture, hypothesis, or other suitable arguments to make a strong and reasonable case for reflection and assimilation of the body of work under consideration. The proposal will present a compelling rationale for how the longitudinal deliberation of prior research outcomes could potentially create new knowledge and broader impact. The Project Description should describe a viable approach to synergy as well as a description of the intended scientific outcomes. The process of synergy may compel the PI to seek a stimulating environment through sabbatical leave outside of their home institution, or forge a close collaboration, though it is not required.

Synergy Track awards must entail elements of reflection, deliberation, and the potential for creating new knowledge and carrying out research for sociotechnical impact within the award time frame.

Pivot track: The BRITE pivot track is intended to enable a researcher to quickly adapt to the fast-moving pace of research and create new knowledge and research outcomes in their field by infusing new concepts from a different discipline or sub-field. It is widely acknowledged that in many fields of engineering, the research landscape is now evolving and progressing at an unprecedented pace. The priorities, research trends and the state-of-the-art in a given research field now is likely to be very different than those at the beginning of the careers of many researchers. Similarly, research tools and methodologies for conducting experimental as well as computational research are rapidly changing and growing in numbers. In so doing, investigators could gain research fluency in a new area and be well-poised to form and contribute to future convergent teams that tackle complex problems that can yield outcomes of broad societal value.

The BRITE pivot track will provide researchers time and resources to:

(1) Create new research areas and directions that could enable future convergence to address sociotechnical systems. For instance, the pivot track may provide PIs funding to conduct research in a topical area where the PI does not have a proven track record, yet their past research experience is relevant and important.

and/or

(2) Gain expertise in novel research tools and methodologies that have the potential to make significant leaps in advancement of knowledge in their field of research. For instance, the pivot track may provide the opportunity for the PI and their trainee to learn and gain fluency in a new area through immersive disciplinary and cross-disciplinary collaborations.

Proposals in the Pivot Track will be assessed based on the originality of the pivot and the potential for transformative impact.

Relaunch track: The BRITE Relaunch track is intended to invest in PhD scientists and engineers who have had a pause in research activity to help relaunch them back into active research, and to diversify the experiences of the nation's STEM researchers. A Relaunch proposal can be submitted by a PI who has had a hiatus in active research as evidenced by a funding gap, due to reasons such as – but not limited to – a non-traditional career path in academia or a significant personal/family event leading to time away from research, a significant period of heavy teaching or service load at the institution or for the community, or other situations. For purposes of this solicitation, hiatus means an extended period without substantial external funding, and/or an extended period without a substantial peer-reviewed publication. The PI should provide a clear description, in the track relevance section, on the impacts of the hiatus situation, highlighting the PI's trajectory and achievements prior to the active research disruption. A justification of the hiatus is neither required nor to be included in the proposal.

A Relaunch proposal must describe a research idea that creates new knowledge and advances the field with high intellectual merit and broader impact. A Relaunch proposal should include a discussion of the PI's most significant intellectual and educational contributions as separate sections in the Project Description. The Relaunch track provides time and resources for researchers to take opportunities to reestablish a platform for sustained research productivity, which could include exploring new research areas, directions, and fields, as well as maximizing their impact beyond research.

Fellow track: The BRITE Fellow track is intended to support established tenured or equivalent researchers who have demonstrated impact beyond scientific output to request extended time and freedom to use their intellectual creativity in exploring divergent, bold, and ambitious research ideas where the expected scientific outcomes are highly uncertain and, therefore, high-risk. In this solicitation, impact beyond scientific output includes a demonstrated legacy, community building, sustainable educational reform, or mentoring. The program objective is to lay the foundation for future scientific explorations and anticipate future needs. In contrast to traditional research proposals, the BRITE Fellow track is an investment in the individual researcher so that they can define their own high-risk vision with the potential for transformational impact by creating new fields, disrupting a field and challenging prevailing paradigms, presenting unconventional approaches to intractable problems, or mobilizing research communities. Research topics are expected to be more curiosity-driven as compared to the more traditional engineering use-inspired motivation and should push the boundaries of traditional CMMI disciplines, combining the benefits of synergy and convergence in the planned approach.

Potential PIs must demonstrate substantial impact from their prior research efforts (outstanding record of creativity) as well as impact beyond research efforts

(such as engendering innovative and inclusive engineering practices, advancing holistic engineering talent, diversifying pathways to and through engineering). The program encourages proposals from, and meaningful partnerships with, Minority Serving Institutions (MSIs), which include Historically Black Colleges and Institutions (HBCUs), Tribal Colleges and Universities (TCUs), Hispanic Serving Institutions (HSIs), and other institutions that enroll a significant percentage of underrepresented racial/ethnic minority students as defined by the U.S. Department of Education and other historically marginalized populations. These institutions include Predominantly Black Institutions, Alaska Native-Serving Institutions, Native Hawaiian-Serving Institutions, Asian American and Pacific Islander Serving Institutions, as well as organizations that reflect, support, and include a diverse public including women, LGBTQ+, African Americans, Hispanics, American Indians, Alaska Natives, Native Hawaiians, Native Pacific Islanders, and persons with disabilities. The proposal should describe areas of research they would like to explore, a range of possible activities and the potential impact. This track is intended to support a broad spectrum of scientific areas within the range of topics that CMMI supports. Though untethered, the proposed research plan should focus on developing a deep understanding of fundamental phenomena, and the explorations supported by sound rationale.

BRITE Fellows will be expected to participate in NSF organized convenings and activities throughout the year. These activities may include a kick-off meeting, technical workshops, an annual meeting to report progress, and curricular workshops as a means of exploring techniques for further innovation. Fellows must be able to demonstrate a significant commitment to this activity, and as such are expected to dedicate a minimum of 2 months of non-teaching effort per year to be eligible.

BRITE Fellows will form a cohort that offers their perspectives on leading edge research at annual BRITE Fellow conferences. They may be encouraged to serve on advisory boards, panels, or groups. A list of BRITE Fellows will be shared publicly. The BRITE cohort will reflect the geographic and institutional diversity across the United States.

BRITE Fellows may not currently hold or accept faculty fellow awards of equal caliber in addition to the BRITE Fellow award for the same period of time.

References

[1] *Building the Future Investing in Innovation and Discovery: NSF Strategic Plan 2018-2022*. https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf18045.

[2] Charting a Course for Success: Americas' Strategy for STEM Education. 5-Year STEM Education Strategic Plan.

[3] Mathews, K. R. 2014. Perspectives on Midcareer Faculty and Advice for Supporting Them. Cambridge, MA: The Collaborative on Academic Careers in Higher Education. http://scholar.harvard.edu/files/kmathews/files/coache_mathews_midcareerfaculty_20140721.pdf.

[4] Eagan, M.K., Jr., and J. C. Garvey. 2015. Stressing Out: Connecting Race, Gender, and Stress with Faculty Productivity. The Journal of Higher Education 86:923-954. https://doi.org/10.1080/00221546.2015.11777389.

[5] O'Meara, K., C. J. Lennartz, A. Kuvaeva, A. Jaeger, and J. Misra. 2019. Department Conditions and Practices Associated with Faculty Workload Satisfaction and Perceptions of Equity. The Journal of Higher Education 90:744-772. https://doi.org/10.1080/00221546.2019.1584025.

[6] National Science Foundation, National Center for Science and Engineering Statistics (NSF/NCSES), "Women, Minorities, and Persons with Disabilities in Science and Engineering: 2019" (Special Report NSF 19-304). Alexandria, VA. https://ncses.nsf.gov/pubs/nsf19304/.

[7] Huang, J., A. J. Gates, R. Sinatra, and A-L. Barabasi. 2020. Historical comparison of gender inequality in scientific careers across countries and disciplines. Proceedings of the National Academies of Sciences Feb 2020, 201914221; DOI:10.1073/pnas.1914221117. https://doi.org/10.1073/pnas.1914221117.

[8] Misra, J., J. H. Lundquist, E. Holmes, and S. Agiomavritis. 2011. The ivory ceiling of service work. Academe 97:22-26. https://www.aaup.org/article/ivory-ceiling-service-work#.Xim9Ei3MxTY.

[9] O'Meara, K., A. Kuvaeva, G. Nyunt, C. Waugaman, and R. Jackson. 2017. Asked more often: Gender differences in faculty workload in research universities and the work interactions that shape them. American Educational Research Journal 54:1154-1186. https://doi.org/10.3102/0002831217716767.

[10] Barnett-Page, E., Thomas, J. 2009. Methods for the Synthesis of Qualitative Research: A Critical Review. *BMC Med Res Methodol* **9,** 59. https://doi.org/10.1186/1471-2288-9-59.

[11] Cooper, H., Hedges, L., Valentine, J., Editors. 2019. The Handbook of Research Synthesis and Meta-Analysis. 3rd Edition. Russell Sage Foundation.

III. AWARD INFORMATION

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds.

Anticipated funding is $10,000,000, pending availability of funds to support approximately 30 awards in FY2022.

BRITE Synthesis track is eligible for 2 years of funding.

BRITE Pivot and Relaunch tracks are eligible for 3 years of funding.

BRITE Fellow track is eligible for 5 years of funding.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.

Who May Serve as PI:

The PI must hold a tenured faculty appointment at the Associate/Full Professor rank or equivalent at an organization that is eligible to submit as described under "Who May Submit Proposals." Co-PIs are not allowed on any of the tracks. Separately submitted collaborative proposals are not allowed.

Principal Investigators are limited to one active BRITE award at a time.

BRITE Fellows may not currently hold or accept fellowships of equal caliber (i.e. similar intent, funding level, and or prestige such as the Vannevar Bush Faculty Fellows award) concurrently with a BRITE Fellow award.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or co-PI: 1

An individual may serve as PI on only one BRITE proposal in a given track. This limitation does not include receiving a subaward as part of another BRITE proposal. There are no restrictions or limits on serving as Senior Personnel. Co-PIs are not allowed on any of the tracks.

Additional Eligibility Info:

Principal investigators must be tenured or equivalent (Associate or Full) to submit to any one of the tracks. A letter from the investigator's department head certifying the applicant's eligibility and department's support of the investigator's proposed plan must be uploaded as a supplementary document and follow the template provided.

Because a **significant level of personnel effort** is **expected**, PIs **may request more than two months of salary support** per calendar year. For the Fellow track, PIs must be able to demonstrate a significant commitment to the activity, and as such are expected to dedicate at least 2 months of non-teaching effort per year to be eligible. Furthermore, BRITE Fellows may not currently hold or accept a fellow status of equal caliber concurrently with the BRITE Fellow award.

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 Research.gov or Grants.gov.

- Full Proposals submitted via Research.gov: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal and Award Policies and Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg. Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov. The Prepare New Proposal setup will prompt you for the program solicitation number.
- 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: (https://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) 292-8134 or by e-mail from nsfpubs@nsf.gov.

See PAPPG Chapter II.C.2 for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the PAPPG instructions.

For all four tracks, the proposal should be designated as a "Research" type of proposal.

Proposals involving multiple organizations may only be submitted from a lead organization with other collaborating organizations included as subawardees. Separately submitted collaborative proposals are not allowed.

Proposal Title: The title of the proposal must begin with "BRITE" followed by the track identifier (Synthesis, Pivot, Relaunch or Fellow) followed by a colon. The rest of the title of the proposal should describe the project in concise, informative language, without use of acronyms, so that a technically literate reader can understand what the project is about. The title should emphasize the science and engineering work to be undertaken and be suitable for use in the public press.

KEY COMPONENTS OF THE PROJECT DESCRIPTION

Project Description

Full proposals must follow the PAPPG guidelines for the Project Description. The Project Description must include the following solicitation-specific subsections: 1. Past Contributions, 2. Research Approach and Research Plan, 3. Track Relevance, 4. Outcomes, and 5. Diversity, Equity, and Inclusion, with levels of detail to match the selected track. These subsections are required and must be included with specific headings within the body of the Project Description. The solicitation-specific subsections are in addition to the requirements specified in the PAPPG (a separate section labeled "Broader Impacts", Results from Prior NSF support). The Project Description must not exceed the 15-page limit. See section VI, Additional Solicitation Specific Review Criteria for more detail.

The Project Description should provide a clear statement of the work to be undertaken and must include the objectives for the period of the proposed research and expected significance. Proposals should discuss 1) objectives and significance of the proposed activity; 2) the suitability of the methods to be used; 3) the qualifications of the investigator; and 4) the ability of the effort to produce outcomes aligned with one of the tracks in this solicitation.

In addition to the requirements of the PAPPG, the project description must include the following sections with separately labeled headings as indicated:

Past Contributions:

In this section, investigators provide context for their most significant prior contributions in both research and broader impacts (taken from anywhere along the span of their professional careers). The specific context will depend on the goals of the target track. This could include demonstration of a particular skill, technical expertise, or the research result itself. This section could occupy up to two pages of the Project Description and can be interpreted as a hybrid Professional Research Profile. Discussion of interdisciplinary engagement and education expertise – as appropriate for the topic and track selected – can be included in this section.

For the Relaunch track, justification of a hiatus is not required and is strongly discouraged.

For Synthesis and Relaunch, past research and broader impact contributions are to be considered on an expanded timeline of one's career and are not limited to the recent past.

Research Approach and Research Plan:

The research approach and plan should summarize the state of the art of the field and or impact areas, describe what is innovative about the proposed approach, and describe the technical research activities to be undertaken. This section should describe how the research will lead to advances in one or more CMMI thrust areas and or grow the field.

Product development or instrumentation in and of itself is not suitable for this or any of the BRITE tracks. If proposed, it must be integrated as a core activity that will lead to new scientific knowledge.

Track Relevance

The proposed effort must clearly match the goals described in the track description. Explain fully the match to one of the tracks in this solicitation (Synergy, Pivot, Relaunch, Fellow) and how the proposed work will assist in the meeting the track goals. Explicitly discuss why the project is best fit for the selected track. Explain ways in which the proposal is distinguishable from a typical unsolicited proposal to a core program due to the nature of the track.

Outcomes

Assuming a successful investigation, proposers should identify the expected research outcomes, or other resources that the project seeks to develop and describe how those outputs will benefit the field and society. Outcomes may take many forms, however, the proposal must clearly describe how the outcomes can benefit the field and society.

For the *Fellow track*, proposals must demonstrate strategic judgment and rationale for the curiosity-driven exploration. An expression of potential farsighted outcomes is encouraged although not required for this track.

Diversity, Equity, and Inclusion

NSF is committed to diversity, equity, and inclusion in all science and engineering fields and research endeavors. This is also an Administration priority https://www.whitehouse.gov/priorities/. The underrepresentation of many groups in science and engineering as classified by gender identity, race, and ethnicity — including women, LGBTQ+, African Americans, Hispanics, American Indians, Alaska Natives, Native Hawaiians, Native Pacific Islanders, and persons with disabilities — deprives large segments of the population the opportunity to be creators of research and technology and deprives the scientific enterprise of their potential contributions.

Activities that will be undertaken to provide equitable access and inclusion in the project's research efforts, or build an inclusive research climate locally can be described in this section of the project description. Examples of ways to engage groups and/or individuals that are typically underrepresented could include: through the expertise of personnel, via collaborations, through work with downstream impact groups, via engagement with students and the broader community, etc. The proposed activities should be grounded in evidence-based approaches. As these are single investigator projects, the scope is expected to lie within the bounds of an individual effort. More information can be found at the following links: https://www.nsf.gov/od/broadeningparticipation/bp.jsp.

Supplementary Documents:

The proposal should include applicable supplementary documents as instructed PAPPG. The following items are to be provided as additional supplementary documents. Please note that Research.gov currently can only accept one file for Other Supplementary Documents. If submitting via Research.gov, please combine all documents designated as Other Supplementary Documents into one PDF.

Department Chair Letter: A letter from the investigator's department head certifying the applicant's eligibility and department's support of the investigator's proposed plan must be uploaded as a supplementary document and contain **only** the text provided below:

"This letter certifies that the PI is a tenured professor (or equivalent) in Department XX and eligible to participate in the BRITE solicitation. The department supports the applicant's research and education activities as described in their project description."

Because a **significant level of personnel effort** is **expected**, PIs **may request more than two months of salary support**. Any compensation for Senior

Personnel must be disclosed in the proposal budget, justified in the budget justification, and must be specifically approved by NSF in the award notice budget. For the Fellow track, PIs must be able to demonstrate a significant commitment to the activity, and as such are expected to dedicate at least 2 months of non-teaching effort per year to be eligible. Furthermore, BRITE Fellows may not concurrently hold or accept fellowships of equal caliber with the BRITE Fellow award.

List of Project Personnel: *NSF staff will use this information in the merit review process to manage reviewer selection.* Each proposal must include a table that lists the PI, and all Senior Personnel. This table should list the following information for each individual in separate columns: Last Name; First Name, Middle Initial; Organizational Affiliation. There is no limit on the number of Senior Personnel. **This personnel table is in addition to the Collaborators and Other Affiliations Information that is required for all Senior Personnel.**

Letters of Collaboration: If the project involves collaborative arrangements of significance, these arrangements should be documented in the Project Description.

For a significant collaborator, investigators are permitted to include <u>one</u> detailed letter of collaboration up to two pages long. All other letters of collaboration must follow the PAPPG recommended format of 2 sentences. *Please note that letters of recommendation for the PI or other letters of <u>support</u> for the project are not permitted.*

Postdoctoral Researcher Mentoring Plan: *(up to one page)* As described in the PAPPG section II.C.2.j, each proposal that requests funding to support postdoctoral researchers must upload under "Mentoring Plan" in the supplementary documentation section, a description of the mentoring activities that will be provided for such individuals. In some cases, postdoctoral researcher support might be justified (for example, for the Relaunch and Pivot tracks). Significant rationale should be provided in the project text if such support is sought.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

Proposals should include a two-year, three-year, or five-year budget.

Budgets for all projects must include funding for the PI to attend at least one meeting per year, which may be virtual or in the Washington, DC area.

Because a **significant level of personnel effort** is <u>expected</u>, PIs **may request more than two months of salary support**. PAPPG Chapter II.C.2 contains NSF's policy on Senior Personnel salaries and wages. Any compensation for Senior Personnel must be disclosed in the proposal budget, justified in the budget justification, and must be specifically approved by NSF in the award notice budget.

C. Due Dates

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

    April 25, 2022

D. Research.gov/Grants.gov Requirements

For Proposals Submitted Via Research.gov:

To prepare and submit a proposal via Research.gov, see detailed technical instructions available at: https://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_pageLabel=research_node_display&_nodePath=/researchGov/Service/Desktop/ProposalPreparationandSubmission.html. For Research.gov user support, call the Research.gov Help Desk at 1-800-673-6188 or e-mail rgov@nsf.gov. The Research.gov Help Desk answers general technical questions related to the use of the Research.gov 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: https://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 Research.gov may use Research.gov 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 acknowledgment 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 PAPPG Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: https://www.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 *Building the Future: Investing in Discovery and Innovation - NSF Strategic Plan for Fiscal Years (FY) 2018 – 2022*. 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. (PAPPG 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 PAPPG 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 other underrepresented groups 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

In addition to above criteria, reviewers will be asked to address the following questions:

- Merit of the Past Contributions
  - To what extent does the project description leverage the PI's prior research outcomes or skills, and utilize reflection, assimilation, synthesis, learning, exploration – as appropriate for the target track? To what extent does the project description show the PI's contributions to community building, legacy-building, mentorship, and other human capacity-building outcomes?
- Research Approach and Research Plan
  - In what ways does the project description represent fundamental research that will deepen knowledge, create new knowledge, and or benefit society?
- Track Relevance
  - Is the proposed research appropriate – in what ways is it a close match to one of the tracks in this solicitation?
  - How will the proposed research meet the goals of the track?
- Risk Assessment

  In what ways is the proposed research high-risk?

- Diversity, Equity, and Inclusion

  To what extent does the project include an authentic plan for the PI to foster diversity, equity, and inclusion in research in the local academic and or broader community?

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 generally be completed and submitted by each reviewer and/or panel. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

Fellow Track proposals will go through an additional Merit Review Process as described below:

Blue Ribbon Panel

Following the proposal review panels, BRITE program directors will execute an in-person (or virtual) oral *panel*. The Panel Day will consist of an oral pitch session and an evaluation period. The review panel will consist of NSF program directors only.

The review criteria for the oral review session are the same as those applied to the written proposal and described above. Intellectual Merit and Broader Impacts continue to be the key review criteria. From the solicitation specific review criteria, Past Contributions, Outcomes, and Diversity, Equity, Inclusion activities may be easier to access due to the format, but reviewers will be asked to comment on all five areas.

Schedule and Location for Blue Ribbon Panel

The National Science Foundation will notify all proposers of the schedule for the oral presentations and provide further details as they become available. Presentations will likely be virtual pending agency guidance. Presentations should comply with these instructions and any additional instructions that the NSF may provide prior to the presentation. The date of the presentation will be approximately 2-4 weeks after the panel date and PIs will be notified accordingly.

Format of the Panel

The Presentations will occur as follows:

- The proposer will have about 15 minutes (maximum) to present their proposed approach to the review panel on Panel Day 1.
- Time will be allocated for the NSF review panels to ask questions of the proposer following their presentation (approximately 15 minutes). The question-and-answer period does not count against the oral Presentation time limit.

Panel Day 2 will be reserved for reviewer discussions only.

Expected Presentation Content

The oral Presentation should address the following:

Blue Sky Vision Presentation

The description presented should provide your high-risk vision for creatively exploring a divergent, bold, and ambitious research idea and identify the potential for transformational impact. Your topic ideas should not simply summarize or justify your own ongoing or planned research activities. Note that topics or areas of opportunity should be those that would be unlikely to be supported through a typical core program at NSF.

Include the following information in whatever style you wish to prepare your presentation.

- **Introduction and Description** - Provide a brief introduction and overview of the Fellow topic idea. Describe the state of the art (e.g., reference to recent articles in major science or engineering publications) including information on whether current research and education in the field is being done within or outside the United States. Describe the new science and engineering knowledge base that will be developed; explain what the engineering research might look like.
- **Transformative** - Elucidate the compelling reasons why it will be transformative. Does the research have the potential to create new fields, disrupt a field and challenge prevailing paradigms, present unconventional approaches to intractable problems, or mobilize research communities? Why now and why are you uniquely poised to carry out the research?
- **High Risk/High Reward** - Describe the significance of the topic or area of opportunity, including the potential for long term impact on national or societal needs or a grand challenge. Especially note how the proposed topic aligns with the distinct mission of the Foundation. Include information on whether other funding agencies and/or the private sector might have important roles to play.
- **Demonstrated Impact** - Describe your substantial impact from prior research efforts (outstanding record of creativity) as well as impact beyond research efforts(such as engendering innovative and inclusive engineering practices, advancing holistic engineering talent, diversifying pathways to and through engineering).

Vision Chart Summary

Please summarize your responses to each of the above four points in a quad chart on the final slide of your presentation.

The above topics should successfully address the Merit Review Criteria of Intellectual Merit and Broader Impacts, as well as the solicitation specific criteria, set forth previously in this solicitation.

Presentation Media

Proposers shall prepare all presentations using electronic presentation tools when making the oral pitch presentation. The proposer shall provide electronic copies of the oral presentation one week in advance of the presentation.

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 https://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 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 *Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

Special Award Conditions:

NSF BRITE awards will be made in the form of continuing grants.

PIs will be expected to attend an annual review meeting.

For three and five year grants, there will be an evaluation meeting at the end of year 2. The purpose of the evaluation meeting is to assess progress the awardees have made towards advancing project goals. Each awardee will prepare briefing material (expected to be 10 pages or less) describing their accomplishments and make a short presentation which will be followed by questions and answers. The reviewers will evaluate the progress. Taking into account reviewers' input, NSF will make a decision for the third year of funding.

Grantees will be required to include appropriate acknowledgment of NSF support under the NSF CMMI division in any publication (including World Wide Web pages) of any material based on or developed under the project, in the following terms:

"This material is based upon work supported by the National Science Foundation CMMI division under Award No. (Grantee enters NSF award number.)"

Grantees also will be required to orally acknowledge NSF support using the language specified above during all news media interviews, including popular media such as radio, television and news magazines.

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 no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 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 Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

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:

- Nakhiah C. Goulbourne, telephone: (703) 292-7715, email: brite@nsf.gov
- Harry Dankowicz, telephone: (703) 292-2344, email: brite@nsf.gov
- Gianluca Cusatis, telephone: (703) 292-5026, email: brite@nsf.gov
- Khershed P. Cooper, telephone: (703) 292-7017, email: brite@nsf.gov
- Laurel C. Kuxhaus, telephone: (703) 292-4465, email: brite@nsf.gov
- Wendy C, Crone, telephone: (703) 292-4681, email: brite@nsf.gov
- Lucy T. Zhang, telephone: (703) 292-5016, email: brite@nsf.gov
- Siddiq M. Qidwai, telephone: (703) 292-2211, email: brite@nsf.gov

For questions related to the use of FastLane or Research.gov, contact:

- FastLane and Research.gov Help Desk: 1-800-673-6188
- FastLane Help Desk e-mail: fastlane@nsf.gov
- Research.gov Help Desk e-mail: rgov@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.

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 https://www.grants.gov.

ABOUT THE NATIONAL SCIENCE FOUNDATION

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."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the *NSF Proposal & Award Policies & Procedures Guide* Chapter II.E.6 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 https://www.nsf.gov
>
> - **Location:**   2415 Eisenhower Avenue, Alexandria, VA 22314
> - **For General Information**   (703) 292-5111
>   (NSF Information Center)**:**
> - **TDD (for the hearing-impaired):**   (703) 292-5090
> - **To Order Publications or Forms:**
>
>   Send an e-mail to: nsfpubs@nsf.gov
>
>   or telephone: (703) 292-8134
>
> - **To Locate NSF Employees:**   (703) 292-5111

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 System of Record Notices, NSF-50, "Principal Investigator/Proposal File and Associated Records," and NSF-51, "Reviewer/Proposal File and Associated Records." Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

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