

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 products 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.

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 <https://www.energy.gov/sites/prod/files/2019/05/f62/STEM-Education-Strategic-Plan-2018.pdf>

[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>

