

Ms. Chloe Kontos, Executive Director
National Science and Technology Council
Office of Science and Technology Policy

Response to Document Number: 2019-25604
Submitted via JCORE@ostp.eop.gov

January 28, 2020

Dear Ms. Kontos:

Thank you for the opportunity to submit these comments in response to the November 26, 2019 OSTP Request for Information on the American research environment.

RESEARCH RIGOR AND INTEGRITY

Integrity & Reproducibility

The scientific enterprise relies heavily on the ethical action of scientists and a strong peer-review process to ensure the quality of scientific research. The scientific societies are very cognizant of—and dedicated to—their responsibilities in encouraging, publicizing, and fostering ethical behavior amongst their research communities. Examples of society standards can be found at The [Optical Society](#), the [American Physical Society](#), and the [American Astronomical Society](#).

Scientific societies play an important role in ensuring the quality of published research through their efforts such as peer-reviewed journals, magazines, and articles. In addition to financing and managing a world-leading peer review process, scholarly publishers make extensive investments in education, research, and innovative digital platforms that advance American competitiveness and help ensure the competitiveness of American science.

While our societies all are taking steps – and in many cases have been leaders – in advancing open access, a rapid transition away from subscriptions without corresponding resources in place risks the quality and integrity of the scientific enterprise. Federal mandates requiring immediate free distribution of journal articles financed and published by scholarly publishers would undermine society sustainability.

As scientific publishing continues to evolve in the digital age, it is becoming possible to directly link scholarly papers to the data, models, and computer codes that underlie the work. This makes it possible for other researchers to reproduce an experiment and also compare and contrast results with their own scientific work. Establishing easily accessible and usable data archives and sustaining those archives is becoming increasingly important to the scientific enterprise. Federal support is needed for the establishment of sustainable open access data archives and to ensure ready access for scientists and other interested parties. A large amount of technical work is required to link journals to data repositories, and the repositories that already exist need ongoing support.

There is an important role for federal agencies in the establishment of clear, concise guidelines in Requests for Proposals (RFPs). These issuances should include requirements for proposers to show how they will conform to community publication standards for archiving supplemental materials in a usable

form in an established and accessible archive. Beyond guidance in RFPs, it is important to provide mechanisms to identify non-compliance and address it appropriately.

The questions of reproducibility and replicability that confront the U.S. research enterprise are of concern worldwide. Scientific research is inherently international, as is the scientific publication enterprise. Of note, some scientific societies have become increasingly international, with strong participation of scholars worldwide in conferences, publications, and volunteer leadership. Through the societies, the concepts of scientific rigor and the application of consistent ethical standards are applied across the globe. Scientific societies provide an appropriate forum for discussion of best practices from across the international community that address reproducibility and replicability. The federal government has a clear role in facilitating this important discourse between international partners.

Null Results

Within the scientific community, researchers are generally rewarded by work that expands the frontier and answers new and important questions. Peer reviews of funding proposals and research papers for publication generally favor cutting-edge innovative science. For that reason, studies that produce null or negative results are less likely to review well and be accepted for publication. Similarly, research activities that have a sole focus on testing the reproducibility and replicability of published studies are less likely to receive funding or be accepted for publication. Since decisions on promotion and, if applicable, tenure are tied to productivity and grant success, scientists are more likely to focus on new, innovative research than reevaluation of the verity of prior work. A culture shift is needed within the research community and the funding agencies that acknowledges the importance of studies that report null or negative results or seek to replicate or reproduce prior research.

Some scientific societies have established mechanisms for null or negative results to be published. The American Astronomical Society publishes [Research Notes](#), and the Optical Society's [OSA Continuum](#) includes such research. The federal government has an important role in sustaining these publications and expanding them across the community.

COORDINATING ADMINISTRATIVE REQUIREMENTS FOR RESEARCH

Examinations of administrative burden regarding reporting requirements on federally funded research should include consideration of non-profit scientific societies as grant and/or contract recipients. Some of these organizations have been forced to turn down federal funds due to compliance requirements. Reporting requirements should be imposed strategically, to the extent possible, to minimize requirements for collection of information that is not relevant to a particular grant or type of grant.

RESEARCH SECURITY

The success of the U.S. scientific enterprise is built upon the principle that the results of fundamental research in science and engineering are published and shared broadly. As scientific societies, we are strongly committed to well-informed decision making. We believe the U.S. government should continue to gather information on the type and scope of attempts to steal intellectual property within government, academia and the industry sector in order to inform appropriate policy making. We appreciate the diligent efforts of NSF and DOE to assess risks and identify activities of concern. We believe current efforts are most appropriately focused on continuing to gain a clearer understanding of the risks and benefits of the research projects so that this information is available to the government security services.

U.S. government policies and actions must be suitable and proportional to potential security risks; an overly broad approach could threaten the U.S.'s position as a global leader in science and technology. This leadership is due, in large part, to the country's ability to attract scientists and students from around the world who make countless contributions to America's scientific enterprise. Scientific progress and U.S. economic development have been vastly accelerated by bringing the best and brightest minds together. However, restrictions on the travel of international scientists and engineers to attend U.S. conferences and participate in scientific activities hinders the nation's ability to lead the world in research and innovation. Furthermore, international student applications to most American physics Ph.D. programs universities and colleges has declined significantly for the past two years. A recent survey by the American Physical Society suggests that this reflects, at least partially, a perception that they are more welcome elsewhere. Increasing restrictions on travel contributes to this perception which ultimately makes the U.S. a less attractive destination for the world's best talent.

The communication of information regarding activities that threaten the integrity of the research enterprise and national security should be done as comprehensively and transparently as possible to raise awareness in the research community. Professional societies, many of whom organize scientific conferences, can work with the U.S. government disseminate information and in some cases help develop policies that balance the country's national security and the country's status as a place of openness and quality science.

The U.S. government should work alongside professional scientific societies and research institutions to understand how policies will impact research and the people who conduct it. Any federal response should consider the impact on both the overall scientific enterprise and on individual scientists. Additionally, policies under development should include the input of the science and engineering community.

SAFE AND INCLUSIVE RESEARCH ENVIRONMENTS

AIP and many of its member societies have strived for many years to improve and encourage best practices in the research community. In this regard, they have joined the [Societies Consortium on Sexual Harassment in STEMM](#). We urge the government to work with the Consortium on any efforts to create a safe and inclusive research environment.

We support the National Academies of Sciences, Engineering, and Medicine's recommendations contained in its June 2018 report, *Sexual Harassment of Women, Climate, Culture and Consequences in Academic Sciences, Engineering, and Medicine*¹. A few example recommendations include the following:

- Creating a support structure (social services, health care, legal, career/professional) that helps the target of harassment regardless of if the individual formally reports harassment;
- Creating better statutory protections against retaliation for those who report harassment;
- Maintaining strong and diverse leaders who make prevention of harassment an explicit goal of their tenure;
- Creation of training programs that teach leaders how to create explicit harassment prevention plans of action, and;

¹ National Academies of Sciences, Engineering, and Medicine. 2018. *Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/24994>.

- Equitably sharing the responsibility of harassment prevention with other organizations, such that no individual arm of the research sphere can allow for the growth of a hostile culture.

We also support the provisions of the *Combating Sexual Harassment in Science Act of 2019*. This bill provides for the following:

- Uniform harassment reporting policies across federal science agencies and for supporting research on harassment mitigation strategies;
- Federal science agency policies requiring grantee institutions to report back findings of sexual harassment against grant personnel as well as “administrative actions” taken related to ongoing sexual harassment investigations;
- Research on factors behind and consequences of harassment in the STEM workforce as well as on interventions to reduce the incidence and harms of harassment; and,
- Consideration by the Office of Science and Technology Policy for developing guidelines that “require or incentivize” grantee institutions to conduct periodic organizational climate surveys and work to diffuse the dependent relationships between grant personnel and their trainees.

Most scientific societies currently highlight and promote a Code of Conduct for their members which could be used as a standard for government agencies. Members often must agree to a society’s Code of Conduct during their membership renewal process and during meeting registration. Society codes are widely publicized and displayed clearly and in prominent locations at society events, meetings, and conferences. They may include information about additional resources and a web portal or hotline for reporting.

Some scientific professional organizations have found success by establishing an internal, independent committee to investigate and apply penalties to breaches of their Code of Conduct. Many societies apply strict confidentiality rules to protect witnesses and the accused during the investigations, which may mean the investigating committee’s reports are kept private or have limited disclosure. Scientific societies often also make clear that no retaliation will be taken or tolerated against anyone who makes a good faith report of bullying, discrimination, or harassment.

Scientific society professional codes of conduct therefore address equity and inclusion in regard to gender, gender identity, race, ethnic origin, religion, age, marital status, sexual orientation, disabilities, or any other characteristic not related to scientific merit. We recognize that preventing harassment and creating inclusivity are not the duties of legal statutes alone. Organizations must work with the law to create safe and inclusive environments, which many of our member societies have done in creating their codes of conduct.

Many scientific societies dedicate significant resources to programs that seek to address equity and inclusion. Scientific society programs aimed at increasing the number of underrepresented minority students in STEM fields do so through mentoring, scholarships, support for transition into graduate school, travel grants, fellowships, affiliate memberships and many other mechanisms. Some scientific societies hold recurring conferences that are entirely focused on inclusivity. Societies may also offer voluntary site visits to departments to assess workplace culture. It is our recommendation that the government encourages and promotes programs like these efforts to all agencies.

On the topic of African American participation in physics and astronomy in particular, there is a new report from the AIP National Task Force to Elevate African American representation in Undergraduate Physics &

Astronomy (known as TEAM-UP): [*The Time Is Now: Systemic Changes to Increase African Americans with Bachelor's Degrees in Physics and Astronomy*](#), which was released on January 5, 2020. The report includes perspectives from African American students and addresses concepts like belongingness and change management that may help inform your efforts to create safe and inclusive research environments.

Thank you for reaching out for input on these important issues. We stand ready to help with additional information and hope to work with OSTP more on these and other issues in the future.

Sincerely,

[organizational endorsement list will be included here]