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Lisa Nichols, Assistant Director for Academic Engagement
Office of Science and Technology Policy
Eisenhower Executive Office Building
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Via email to: publicaccess@ostp.eop.gov

Dear Dr Lisa Nichols,

As a leading mission-driven scientific society publisher of high quality peer-reviewed journals, AIP Publishing shares OSTP's commitment to advancing access to research outputs. We appreciate the opportunity for open dialog and the opportunity to provide a response to Document 85 FR 9488 (Request for Information: *Public Access to Peer-Reviewed Scholarly Publications, Data and Code Resulting from Federally Funded Research*).

AIP Publishing is a wholly owned subsidiary of the American Institute of Physics (AIP), a 501(c)(3) non-profit organization whose mission is to advance, promote, and serve the physical sciences for the benefit of humanity. AIP plays an active role in advancing policy matters including scientific publishing:

- 1) AIP was involved in the first Scholarly Publishing Roundtable with the Committee on Science and Technology of the United States House of Representatives and OSTP that predicated the 2013 OSTP memo (*Increasing Access to the Results of Federally Funded Scientific Research*).
- 2) AIP Publishing is a founding member of CHORUS, a non-profit organization that monitors and reports on public accessibility, the availability of reuse license terms, relevant datasets and code, and long-term archival and preservation arrangements related to published research outputs.
- 3) AIP participated at the recent Society Publisher Meeting with OSTP on February 28, 2020.

AIP Publishing embraces open access and author rights. Open Access is an important and growing part of our support for the scientific enterprise. In 2019, we published approximately 17% of our content under a CC-BY license, and we publish six gold open access journals. For AIP Publishing's subscription journals, our policy is that authors retain copyright in their version of their article, are able to post the accepted (unpublished) version anywhere without embargo on acceptance.

A scholarly ecosystem where researchers are incentivized and recognized by depositing not only the results and conclusions of their work (research article) but, also all the elements that went into the creation of that work (grants, research data, code, methods, protocols, equipment, prior version of the work (i.e., preprints), etc.) will benefit research substantially and speaks to what Newton said:

'If I have seen further it is by standing on the shoulder of giants' – Sir Isaac Newton 1675

In the sections that follow, we set out AIP Publishing's responses to the questions raised in the RFI.

What current limitations exist to the effective communication of research outputs (publications, data, and code) and how might communications evolve to accelerate public access while advancing the quality of scientific research? What are the barriers to and opportunities for change?

Researchers, including faculty and students, have an excellent understanding of the incentives in publishing their research in the most appropriate journal, seeking the widest audience of their peers. Adopting experimental mandates across the scholarly communications ecosphere is likely to have unintended consequences. There is an opportunity for funders, publishers, institutions, and researchers to approach the challenge together with an open mind geared towards incentives, for example:

- How can we enable a more rapid uptake of open initiatives such as credit for sharing data?
- How can institutions, funders and publishers move academic assessment away from journal impact factors?
- How can the US government seed/support innovation to help drive the development of new products, services and standards that benefit science?

There is a delicate balance between the many different versions of an author's research before, during and at the point of publication:

- Author Submitted Manuscript (ASM) also normally known as a preprint. This is the version of research that the author has created themselves and is widely shared with their community, for comment, prior to submission to a journal.
- Author Accepted Manuscript (AAM) is the version of the manuscript that has successfully navigated the validation of the peer-review process. This version of the manuscript has benefitted from a publisher's investment in the peer review process through the input of referees and journal editors.
- Version of Record (VOR) is the final published manuscript which has been developed and crafted, via a publisher's investment, into a formal part of the scientific literature. The VOR also benefits from the investment a publisher makes to ensure the content is perpetually available in both print and electronic formats for the community to access now and in the future.

Focusing on just the peer-reviewed author manuscript both overlooks the importance of the ASM and unreasonably ignores the intellectual property and investment the publisher has made into the peer-reviewed Author Accepted Manuscript (AAM) and the final published Version of Record (VOR).

In 2018 AIP Publishing's average cost to process and publish an article (the VOR) was \$3000. Roughly a third of that cost was for peer review, including payments to academic editors running the peer-review process. Our costs break down into four relevant categories (figures in parenthesis are percentage of cost):

1. Peer review – submission of an article through to acceptance (30%)
2. Production – acceptance through to the article being published (30%)
3. Overhead – costs to run AIP Publishing (20%)
4. Community investment – a return to the American Institute of Physics to support its mission (20%)

In addition to investing in the publication of high-quality peer-reviewed research resulting from federally funded science, AIP Publishing adds value to an author's published work by investing in innovations to ensure this research is disseminated to the widest audience. For example:

- In 2017 AIP Publishing introduced a new service called [Scilight](#) that summarizes new research, emphasizing its significance to a particular field and amplifying the impact of that research to a broader audience. Each Scilight is written by a professional science writer and is published under a CC-BY license.
- For every journal article published, AIP Publishing has invested in creating structured content with tags that aid in knowledge discovery and learning. This includes the recent development of a novel 13,500+ term thesaurus for the physical sciences.

What more can Federal agencies do to make tax-payer funded research results, including peer-reviewed author manuscripts, data, and code funded by the Federal Government, freely and publicly accessible in a way that minimizes delay, maximizes access, and enhances usability? How can the Federal Government engage with other sectors to achieve these goals?

We would ask OSTP to consider the role of the preprint as an established means of communicating research results. In the physics community, a value culture has been long established around the preprint, with preprints on [arXiv](#) serving to complement peer-reviewed scientific journals. We would encourage OSTP to consider asking Federal agencies to require the deposition of preprints of federally-funded research to an appropriate repository. Preprints would then provide immediate access to research results while supporting peer-reviewed journals to fulfill their role of registration, certification, dissemination, and preservation. We would consider this 'preprint first' route as a more sustainable approach than OSTP's proposed policy of reducing the embargo on the Version of Record from 12 months to zero.

In terms of policy, assessment and metrics are important. We would suggest that OSTP conduct an independent study to quantify the impact of the 2013 OSTP memorandum *Increasing Access to Results of Federally Funded Scientific Research*. What has been the impact of the current 12-month embargo? What are the costs and benefits of the current policy? Can we quantify implementation across the different funding agencies? As a scientific society publisher, we support evidence-based and data-driven approaches and encourage OSTP to do likewise when considering the impacts and policy responses to the 2013 memorandum".

AIP Publishing is experimenting with text and data mining initiatives in partnership with libraries and institutions around the world (for example, the National Institute for Materials Science in Tsukuba, Japan). We encourage the Federal Government to continue to support research and projects in these areas and to involve all key stakeholders.

How would American science leadership and American competitiveness benefit from immediate access to these resources? What are potential challenges and effective approaches for overcoming them? Analyses that weigh the trade-offs of different approaches and models, especially those that provide data, will be particularly helpful.

AIP Publishing believes in enhancing access, increasing researcher productivity, and providing knowledge and insight to help all stakeholders solve the global challenges we face in the 21st century. Fostering a vibrant and self-sustaining scholarly communications ecosystem is critically important to the progress of science and the benefits it will continue to bring to American scientific leadership and American competitiveness.

As part of the research communities we serve, the investments AIP Publishing makes in ensuring scientific quality is significant, and we encourage the Federal Government and its agencies to continue to find ways to take this into account as new policy is developed that balances sustainable business models with the need for innovation.

Any additional information that might be considered for Federal policies related to public access to peer-reviewed author manuscripts, data, and code resulting from federally supported research.

In addition to assessing how preprints can be more closely integrated with funder and publisher policies, public access to research data and code is an emerging topic and one where experimentation to understand and validate systems, processes, standards and different community norms and behaviors will be important. There is a role for key stakeholders including funders, publishers and others, with OSTP possibly taking a coordinating and convening role.

AIP Publishing publishes two data journals, one in partnership with the National Institute of Standards and Technology (NIST) and the other with AVS. We are experimenting with making data actionable and interoperable, for example, taking spectra from PDFs published in the journal *Surface Science Spectra*, extracting the data and developing a new tool, [eSpectra](#).

We would actively welcome opportunities to coordinate with the Federal Government and research agencies in further experimentation to validate effective and cost-efficient ways to enhance access to research data and code.

AIP Publishing would be pleased to provide additional information and to collaborate with OSTP, federal agencies, and other organizations to discuss and develop sustainable solutions that advance open science.

Sincerely

A handwritten signature in black ink, appearing to read "John Haynes". The signature is fluid and cursive, with the first name "John" being more prominent than the last name "Haynes".

John Haynes, PhD
Chief Executive Officer
AIP Publishing

Note: The views and perspectives expressed herein are those of AIP Publishing and do not necessarily reflect those of AIP Publishing's publishing partners, the American Institute of Physics or AIP's Member Societies.