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American Physical Society

Dr. Louis Barbier  
Associate Chief Scientist  
Office of the Chief Scientist  
National Aeronautics and Space Administration  
Washington DC 20546-0001

Dear Dr. Barbier:

The American Physical Society (APS), the nation's largest physics membership organization and a leading publisher of peer-reviewed physics research, appreciates the opportunity to provide public comment on *NASA's Public Access Plan, Increasing Access to the Results of Scientific Research*. It is essential for NASA — and all the federal science agencies — to regularly engage with nonprofit publishers throughout the entire process of developing their public access plans. Professional society publishers, like APS, are vital to the US maintaining its global leadership in science, technology, and innovation, and implementation of the August 2022 OSTP memorandum could have significant and unintended consequences for APS and similar organizations. Implementation of the memo could also impact integrity and equity within the context of research dissemination and the broader scientific enterprise.

In this letter, we provide a brief overview of the Society, including its mission, publishing activities and key open access efforts to date. We provide feedback on NASA's Public Access Plan, highlighting areas of agreement and sharing our concerns, in particular, with researchers maintaining equity in their ability to publish.

APS is a nonprofit membership organization working to advance and disseminate the knowledge of physics through its leading research journals, scientific meetings, and education, outreach, advocacy and international activities. APS represents more than 50,000 members, including physicists in academia, national laboratories, and the private sector, in the United States and throughout the world.

The Physical Review (*Phys Rev*) journals published by APS comprise the premier family of peer-reviewed titles, and this year are celebrating 130 years of serving researchers in the physical sciences and adjacent fields. There currently are 17 *Phys Rev* journals that, taken together, publish approximately 20,000 peer-reviewed articles each year. Our flagship journal, *Physical Review Letters*

has published research leading to Nobel Prizes awarded in each of the last 12 years. **Unlike commercial publishers, APS directs all proceeds from its publishing program into advancing the Society’s mission to disseminate physics and, in particular, to building and sustaining a competitive and diverse US STEM workforce.**

APS supports the principles of open access ([https://www.aps.org/policy/statements/09\\_2.cfm](https://www.aps.org/policy/statements/09_2.cfm)) and has been an open access (OA) leader for decades. In 1998, APS established one of the first fully OA journals in all of physics, *Physical Review Accelerators and Beams*. Today, all *Phys Rev* primary research journals offer an OA option or are fully OA. The Society also provides financial support for arXiv.org — a publicly accessible repository for preprints in numerous fields, including physics and mathematics — and was a founding member of CHORUS. Additionally, APS allows US high schools and public libraries to access our journal articles free of charge.

Given the Society’s leadership in OA, we applaud and support many of the clear objectives towards advancing open science laid out in NASA’s Public Access Plan – a commitment to providing free public access to scientific research results; supporting governance of and best practices for managing peer-reviewed scholarly publications; ensuring effective access to and reliable preservation of NASA peer-reviewed scholarly publications; and enhancing innovation and competitiveness by maximizing the potential to create new business opportunities. We also appreciate the agency’s understanding of the critical role high-quality publishers play in advancing open science, integrity, and equity in an enhanced public access landscape.

In review of NASA’s Public Access Plan, we appreciate the agency’s clear statement that it intends for researchers to pay to publish an article open access, and that grant proceeds may be used for such purposes. Of course, it is critical that this clear statement be accompanied by an explicit ask in NASA’s annual budget request to the Office of Management and Budget for additional resources designated to support researchers’ costs to publish open access.

**While we applaud NASA’s aim to support its researchers publishing OA, we are deeply concerned with the lack of acknowledgement of the fundamental risk to equity in all researchers’ ability to publish.** To be clear, this concern is not unique to NASA’s plan; it is also our primary concern with the recently released draft plans for the National Science Foundation and Department of Energy Office of Science.

Currently, any researcher — regardless of their resources — can have their research results published in a *Phys Rev* journal. During the last several years, researchers from approximately 800 institutions across the United States have published in *Phys Rev* journals, with the vast majority of authors choosing to do so at zero cost to them, either by publishing under the subscription model and adhering to a 12-month embargo, or via a funded gold open access program, such as SCOAP<sup>3</sup> or a read-and-publish agreement. These “zero cost to authors” options are generally made possible by those paying to read the content, *i.e.*, libraries and consortia globally.

Providing any author the ability to publish high-quality research in our journals is central to the Society’s mission and essential to advancing science. But this ability is being put at risk by the August 2022 OSTP memo and similar policies being advanced in the UK and Europe; below we offer a brief explanation as to why.

As you know, high-quality publishers provide robust peer review and publishing services, develop high-quality publications, and invest in the broader publishing infrastructure, which includes metadata, persistent identifiers, and other components critical to open science. Publishing high-quality scientific journals and

developing and maintaining the infrastructure necessary to do so requires financial support. Today, that support is largely provided by subscription fees paid by libraries and other institutions.

But maintaining that support, and our ability to continue as the premier US publisher of physics research, is now in jeopardy. In direct response to the August 2022 OSTP memo, nearly all of the federal science agencies' newly proposed public access plans will require that peer-reviewed scientific publications be made available free of charge immediately upon publication. This requirement will fundamentally undermine the traditional subscription model that has supported quality journals — including robust peer review and other practices that uphold scientific research integrity — for many decades.

To understand the impact of these new public access policies, APS performed an analysis on *Phys Rev*-published articles from 2015-21. This analysis showed that under the OSTP memo and Plan S, the percentage of *Phys Rev* journal articles that would be required to be immediately available upon publication would imperil subscriptions. For example, more than 60% of the articles published in PRL would have to be made immediately available. And should Canada and the remaining countries in Europe follow suit and implement guidance similar to the OSTP memo or Plan S, approximately two-thirds of all *Phys Rev* articles — and more than 80% of all articles published in PRL — would become immediately available upon publication.

Under such scenarios, it is clear that APS and other nonprofit publishers will experience a significant decline in the perceived value of their subscription offerings and a resulting decline in subscription revenue, and thus will need to introduce new financial models to sustain high-quality OA publishing and other services in support of advancing open science. **Stated another way, the costs associated with publishing high-quality, peer-reviewed publications would necessarily be shifted from readers (often by proxy, via subscribers) to authors (or their institutions and/or funders).** So while we agree that immediate open access will increase the impact and value of published research, we are deeply concerned about the impact on researchers/authors, in particular, those performing research with limited resources.

Unfortunately, to date, most of the federal science agencies' draft public access plans do not offer clear, viable solutions for maintaining equity for authors. Green open access — the public posting of accepted manuscripts at the time of publication — is regularly offered as a solution. But green open access does not include any financial model. In practice, green open access is subsidized by the subscription model, and thus dependent upon the support of librarians and other subscribers. **Absent continued subscriptions, green open access will not be sustainable.**

Under the agencies' draft plans, the inequities for some readers under the US research ecosystem's current model will necessarily be shifted to authors if an increasingly open access ecosystem is advanced without the federal government simultaneously providing the necessary funding to support new publishing models.

To help ensure that all US-based researchers can continue to publish in high-quality, nonprofit journals of their choosing, all federal science agencies must take the following steps as they review and revise their draft public access policies to:

- Include a clear statement that the agency intends for researchers to pay to publish an article open access, and that grant proceeds may be used for such purposes.
- Include a clear statement that the agency's grant proposal decisions will be agnostic of research dissemination costs, including to publish articles open access.
- Allow authors flexibility in choice of license options for depositing peer-reviewed manuscripts, in order to allow authors to comply with the policies of recognized and reputable journals serving their fields of research.

- Avoid the incorrect assumption that adopting rights retention policies will enable researchers to achieve open access under a CC BY license at no cost, as the policies of many publishers of trusted and influential journals, including APS, can only support authors required to retain copyright through gold open access options — rather than the subscription model, which requires the transfer of copyright from author(s) to publisher — that require payment of an article processing charge (APC) or other sustainable funding.

**Additionally, the federal science agencies must be explicit in their annual budget request to the Office of Management and Budget by including additional resources designated to support researchers' costs to publish open access.** The wide dissemination of research results is a critical step in advancing science. And while agencies are indicating that grantees can reprogram their current funding to cover publication costs, this simple reprogramming — without providing additional funding to support publishing open access — will necessarily result in less funding for research.

In an increasingly open science landscape, reliable funding to support APCs for gold open access will undoubtedly be required as subscriptions inherently decline. Federal agency support will be critical to avoid simply shifting inequities from readers to authors in an otherwise desirable open science future.

Thank you for considering our comments as you and your colleagues work toward revising and updating NASA's Public Access Plan. If you have questions or would like to further discuss any point provided in this comment, please do not hesitate to contact APS Director of Public Affairs Mark Elsesser (elsesser@aps.org; 202.846.8121).

Sincerely,

A handwritten signature in black ink that reads "Robert Rosner". The signature is written in a cursive, slightly slanted style.

Robert Rosner  
President, American Physical Society