

IOP response to the UKRI Open Access Review consultation

29 May 2020

Section A: Research Articles

Q1. To what extent do you agree or disagree that it is clear what research articles are in-scope of UKRI's proposed OA policy (see paragraph 46 of the consultation document)? Strongly agree / **Agree** / Neither agree nor disagree / Disagree / Strongly disagree / Don't know / No opinion.

If anything is unclear, please explain why (1,350 characters maximum, approximately 200 words).

It may be helpful to provide researchers with guidance on an agreed standard for acknowledging UKRI funding (e.g. whether grant number must be referenced). The policy could also benefit from further clarity on whether commissioned review articles that make reference to UKRI research will always be in or out of scope. For example, our subsidiary publishing company IOP Publishing sees some instances where authors of such review articles acknowledge a funder if they are in receipt of funding from that organisation at the time of writing, even if results deriving from that project are not directly part of the specific article.

Q2. Are there any additional considerations that the UK HE funding bodies should take into account when defining research articles that will be in scope of the OA policy for the REF-after-REF 2021? **Yes** / No / Don't know / No opinion.

If yes, please expand (1,350 characters maximum, approximately 200 words).

Please see paragraphs 29-31 of the consultation document before answering this question.

If the proposed UKRI OA policy is adopted for the REF after next, researchers will need clear and early (i.e. available immediately after the end of the current REF eligibility period) guidance that all articles they publish as author or co-author will need to comply in order to be eligible. Within physics alone it would increase the number of in-scope research articles almost 300%, with significant implications for administration and open access publication costs. It would also further increase the risk of limiting UK researchers' opportunities for international collaboration if international researchers are subject to different or conflicting OA policies (a point we address in more detail later in our response) and of causing significant extra work for UK authors in liaising with their international co-authors on these issues.

Q3. In setting its policy, should UKRI consider any other venues for peer-reviewed research articles which are not stated in paragraph 47 of the consultation document? Yes / **No** / Don't know / No opinion.

If yes, please expand (700 characters maximum, approximately 100 words).

Q4. Are there any specific challenges for you, your community or your organisation in terms of complying with the requirement in UKRI's proposed policy for immediate OA of in-scope research articles? **Yes** / No / Don't know / No opinion.

Please explain and, where possible, evidence your answer. UKRI notes that there will be a period allowing for implementation before the policy comes into force (see paragraph 70 of the consultation document). (2,650 characters maximum, approximately 400 words.)

The IOP fully endorses the principle of ensuring the widest possible dissemination of scholarly work and IOP Publishing is already supporting this through a transformative agreement with UK universities. We would welcome the opportunity to work with UKRI and the physics community to foster greater understanding and acceptance of OA among researchers, and a better appreciation of the benefits, to further drive progress.

We do, however, believe the transition to OA is best achieved through publication on a hybrid or fully OA basis and that a more restrictive policy or one that requires immediate OA via repositories would have serious implications for UK researchers and the publishers of their research.

We firmly believe that researchers should be able to publish in the journal that is best suited to their research. A restrictive policy would mean that many researchers will no longer have the same freedom of choice in where they publish their work and in certain cases an equivalent alternative journal option may not exist in terms of comparable subject scope or reputation among their peers. As an example of the current diversity of publication venues, physics articles acknowledging UKRI funding over the last three years were published in almost 350 non-fully OA journals but in fewer than 35 fully OA journals. Hybrid journals still have an essential role to play in balancing the expansion of OA with preserving researchers' equity of access to publish. In addition, scholarly publication takes place in a global context and UKRI-funded researchers may find that a restrictive policy makes collaboration with other UK and international researchers, who will be subject to different and potentially even conflicting OA policies, problematic. This challenge to free collaboration on research could result in a reduction in international collaborations and research article output for the UK, potentially damaging our global competitiveness.

For publishers, any requirement that the peer-reviewed version of an article is made immediately free through a repository represents a considerable challenge to the economic viability of managing the high-quality peer review which underpins rigour and reproducibility in research, as free availability will lead to subscription cancellations and loss of income. As an example of the level of investment publishers make in these services, approximately half of IOP Publishing's costs are incurred up to the point that an article is accepted by one of its journals.

Q5. Should UKRI's OA policy require a version of all in-scope research articles to be deposited in a repository, irrespective of whether the version of record is made OA via a journal or publishing platform? Yes / **No** / Don't know / No opinion.

Please explain your answer (700 characters maximum, approximately 100 words). Please note that some Research Councils already require articles to be deposited in specific

repositories, as detailed in the terms and conditions of funding. UKRI does not expect this to change.

Where an article is fully funded for publication in an OA journal then that author or their sponsoring organisation will have the option to deposit any version of the article, but usually the version of record, according to their own needs and requirements. However, we do see some risk of confusing the scholarly record if multiple similar versions of an article are available electronically, with such confusion leading for instance to citations intended for one version made to another, possibly one with less secure archiving arrangements. Reputable journals have established arrangements with groups such as CLOCKSS to ensure perpetual archiving.

Q6. For research articles, are there any additional considerations relating to OA routes, publication venues and embargo periods that the UK HE funding bodies should take into account when developing the OA policy for the REF-after-REF 2021? **Yes** / No / Don't know / No opinion.

If yes, please expand (2,000 characters maximum, approximately 300 words). Please see paragraphs 29-31 of the consultation document before answering this question.

Approximately 80% of articles produced by UK-affiliated researchers are not funded by UKRI so it will be important to assess the potential risk to international scientific collaboration if all UK-based researchers are required to make any article on which they are an author or co-author immediately OA without guaranteed financial support to facilitate this. Co-authors based outside the UK may not have the requirement or funding to publish the article OA otherwise, and accordingly could be disincentivised from collaborating with UK researchers.

Q7. To what extent do you agree or disagree that where compliance with UKRI's OA policy is achieved via a repository, a CC BY licence (or Open Government Licence where needed) should be required for the deposited copy? Strongly agree / Agree / Neither Agree nor disagree / Disagree / **Strongly disagree** / Don't Know / No opinion.

Please explain your answer (1,350 characters maximum, approximately 200 words).

The services provided by IOP Publishing journals from the point of article submission through peer review and up to acceptance represent half of the total (direct, variable and overhead) costs incurred in publishing an article. Any version of the peer-reviewed article has therefore involved significant investment by our publishing staff to ensure it is of the highest possible standard. While we fully support the use of CC BY licences on articles published on an OA basis in our journals, deposition of the peer-reviewed subscription-based article in a repository with a CC BY licence will pose a real risk to the economic viability of high-quality peer review, which is essential to the dissemination of trusted research. It would represent an appropriation of that significant investment in the article.

Q8. To what extent do you agree or disagree that UKRI's OA policy should have a case-by-case exception allowing CC BY-ND for the version of record and/or author's accepted manuscript. Strongly agree / Agree / Neither agree nor disagree / **Disagree** / Strongly disagree / Don't know / No opinion.

Please explain your answer. UKRI particularly welcomes evidence supporting: specific cases where ND is considered necessary; an ND exception not being necessary; any implications an ND exception could have for access and reuse (2,000 characters maximum, approximately 300 words).

If compliance is achieved by publication in an OA journal funded by an article publication charge (or equivalent) then CC BY is the appropriate licence within the field of physics, as reuse can be maximised while publishers' costs have been met. Where compliance is achieved through depositing the author's accepted manuscript we believe that CC BY-NC-ND is the appropriate licence, supported by an embargo, to ensure the peer review process is economically viable for publishers. Case-by-case exceptions are unlikely to be workable with the volume of articles in scope of the policy, at approximately 25,000 articles per year, and even more so if extended to the REF after next.

Q9. Would the proposed licensing requirements for UKRI's OA policy, which exclude third-party content (see paragraph 55 of the consultation document), affect your or your organisation's ability to publish in-scope research articles containing third-party content? Yes / **No** / Don't know / No opinion.

If yes, please explain how (1,350 characters maximum, approximately 200 words).

Q10. Are there other considerations UKRI should take into account regarding licensing requirements for research articles in-scope of its proposed OA policy? Yes / **No** / Don't know / No opinion.

If yes, please expand (1,350 characters maximum, approximately 200 words).

Q11. For research articles, are there any additional considerations relating to licensing that the UK HE funding bodies should take into account when developing the OA policy for the REF-after-REF 2021? Yes / **No** / Don't know / No opinion.

If yes, please expand (2,000 characters maximum, approximately 300 words). Please see paragraphs 29-31 of the consultation document before answering this question.

Q12. Which statement best reflects your views on whether UKRI's OA policy should require copyright and/or rights retention for in-scope research articles?

a. UKRI should require an author or their institution to retain copyright and not exclusively transfer this to a publisher

b. UKRI should require an author or their institution to retain specific reuse rights, including rights to deposit the author's accepted manuscript in a repository in line with the deposit and licensing requirements of UKRI's OA policy

c. UKRI should require an author or their institution to retain copyright AND specific reuse rights, including rights to deposit the author's accepted manuscript in a repository in line with the deposit and licensing requirements of UKRI's OA policy

d. UKRI should not have a requirement for copyright or rights retention

e. Don't know

f. No opinion

Please explain your answer. UKRI particularly welcomes views as to whether it is necessary to require copyright and/or rights retention if its policy were to require a CC BY licence, which enables reuse. If you selected answer b or c, please state what reuse rights you think UKRI's OA policy should require to be retained (2,000 characters maximum, approximately 300 words). Please note that views are not sought on whether institutions should hold the copyright to work produced by their employees as this is subject to Section 11 of the Copyright, Designs and Patents Act 1988 and institutional copyright policies.

IOP Publishing recognises and follows best practice in OA publishing of allowing authors to retain copyright if they publish on a hybrid or fully OA basis. It asks only for a non-exclusive licence of the copyright and publishes those articles under a CC-BY licence. However, if an article is not published in an OA journal then IOP Publishing would require, at minimum, the exclusive right to publish the article, with researchers retaining the right to deposit their accepted manuscript in a repository after twelve months. This would preserve publishers' ability to generate income from the sale of subscriptions, which in the absence of article publication charges are necessary to fund peer review and other publication services.

Q13. Regarding research articles in-scope of UKRI's OA policy, to what extent do you agree or disagree with each of the seven proposed technical standard requirements for journals and OA publishing platforms? For each of the seven standards (see paragraphs 67a-67g of the consultation document): Strongly agree / Agree / Neither agree nor disagree / Disagree / Strongly disagree / Don't know / No opinion.

For each of the seven standards (see paragraphs 67a-67g of the consultation document), please explain your answer (700 characters maximum, approximately 100 words, per standard).

a. persistent digital object identifiers (PIDs) for research outputs must be implemented according to international standards such as DOI, URN or Handle

Agree.

PIDs are important components of a healthy modern scholarly communications infrastructure, enabling scholarly items to be uniquely identified and cited, and researchers to be credited for their work. IOP Publishing assigns a DOI to all articles published in its journals. Versions of articles deposited in a repository may not universally receive a PID, which could necessitate technical development by repository providers.

b. article-level metadata must be used according to a defined application profile that supports UKRI's proposed OA policy and is available via a CC0 public domain dedication; the metadata standard must adhere to international best practice such as the Crossref schema and OpenAIRE guidelines

Agree.

Accurate, standardised and freely available metadata support the discovery of scholarly material and for new areas of research to emerge such as metascience. It will be central to efforts to track compliance for UKRI's OA policy. IOP Publishing's metadata adhere to best practice standards in alignment with Crossref and are released under a CC0 licence.

c. machine-readable information on the OA status and the licence must be embedded in the article in a standard non-proprietary format

Agree.

Machine-readability of an article's OA status and the licence under which it is published is fundamental to the discovery and reuse of scholarly material. IOP Publishing uses a standard machine-readable identifier for OA content.

d. long-term preservation must be supported via a robust preservation programme such as CLOCKSS, Portico or an equivalent

Agree.

Reputable publishers have robust arrangements in place to support long-term preservation and their involvement with established third parties such as CLOCKSS adds further reassurance for the scientific community.

e. openly accessible data on citations must be made available according to the standards set out by the Initiative for Open Citations (I4OC)

Agree.

I4OC reduces the barriers to the free flow of information about the scholarly record and supports discovery of scholarly content. IOP Publishing has therefore included its references in I4OC.

f. self-archiving policies must be registered in the SHERPA RoMEO database that underpins SHERPA/FACT

Agree.

SHERPA RoMEO provides an important service by offering an independent, standardised record of publishers' policies. However, the utility of the service relies on publishers and Jisc maintaining up-to-date records and so this element of UKRI's requirements should be reviewed if the service falls below adequate levels of accuracy in future, for instance if resourcing levels for the service are reduced.

g. unique PIDs for research management information must be used and must include the use of ORCID to identify all authors and contributors

Disagree.

We would advise against requirement of ORCID for all authors and co-authors until uptake among researchers is at or close to universal. We require ORCID from all corresponding authors but leave this as optional for co-authors. Awareness and engagement with ORCID among researchers even in the UK are not yet complete, with the total number of registered ORCIDs in the UK still only around one quarter of the number of UK-based authors publishing an article each year. Proportional uptake outside the UK will be even lower and approximately one third of articles in physics acknowledging UKRI funding have co-authors based outside the UK.

Q14. Regarding research articles in-scope of UKRI's OA policy, to what extent do you agree or disagree with each of the five proposed technical standard requirements for institutional and subject repositories? For each of the five standards (see paragraphs 68a-68e of the

consultation document): Strongly agree / Agree / Neither agree nor disagree / Disagree / Strongly disagree / Don't know / **No opinion**.

For each of the five standards (see paragraphs 68a-68e of the consultation document), please explain your answer (700 characters maximum, approximately 100 words, per standard).

No opinion for all of the below

a. PIDs for research outputs must be implemented according to international standards such as DOI, URN or Handle

b. article-level metadata must be implemented according to a defined application profile that supports the proposed UKRI OA policy and is available via a CC0 public domain dedication; this should include the persistent identifier to both the author's accepted manuscript and the version of record; the metadata standard must adhere to international best practice such as the OpenAIRE guidelines

c. machine-readable information on the OA status and the licence must be embedded in the article in a standard non-proprietary format

d. unique PIDs for research management information must be used and must include the use of ORCID to identify all authors and contributors

e. the repository must be registered in the Directory of Open Access

Repositories (OpenDOAR)

Q15. To support the adoption of technical standards for OA, are there other standards, actions and/or issues UKRI should consider? **Yes** / No / Don't know / No opinion.

Please explain your answer (2,650 characters maximum, approximately 400 words).

To mitigate the administrative burden for all stakeholders in complying with new policy requirements UKRI could review whether it would be appropriate to provide financial support for the OA Switchboard (<https://www.oaswitchboard.org/>), a recently-launched independent technical initiative between funders, universities and publishers that seeks to facilitate the information exchange about OA publication between these groups.

Q16. To support the implementation of UKRI's proposed OA policy requirement for research articles to include an access statement for underlying research materials (see paragraph 69 of the consultation document), are there any technical standards or best practices that UKRI should consider requiring? **Yes** / No / Don't know / No opinion.

Please explain your answer (1,350 characters maximum, approximately 200 words).

To support best practice, UKRI could consider requiring that any underlying data or research materials that its grant recipients make publicly available seek as far as is possible to meet the 'FAIR' principles of being findable, accessible, interoperable and reproducible (e.g. <https://www.force11.org/group/fairgroup/fairprinciples>) to maximise the transparency and reproducibility of research that UKRI funds.

Q17. UKRI's OA policy is proposed to apply to in-scope research articles accepted for publication on or after 1 January 2022. Which statement best reflects your views on this?

- a. The policy should apply from 1 January 2022
- b. The policy should apply earlier than 1 January 2022
- c. The policy should apply later than 1 January 2022
- d. Don't know
- e. No opinion

Please explain your answer. UKRI particularly welcomes detailed evidence as to the practical implications of the choice of date. If you selected b or c, please also state what you consider to be a feasible implementation date (2,000 characters maximum, approximately 300 words).

Researchers need to know what policy will apply to their article at the point that they submit the article to a journal, especially where compliance is expected to happen through OA publication in a journal that levies an article charge. Peer review takes two to three months on average at IOP Publishing but at some other publishers and in some other fields it can take significantly longer. Rather than risk estimating this timeframe, we suggest that the policy applies to in-scope articles **submitted** for publication on or after 1 January 2022.

Q18. For research articles, are there any considerations that UKRI and UK HE funding bodies need to take into account regarding the interplay between the implementation dates for UKRI's OA policy and the OA policy for the REF-after-REF 2021? **Yes** / No / Don't know / No opinion.

If yes, please expand (2,000 characters maximum, approximately 300 words).

In physics, UKRI-funded research represents only around a quarter of the total number of research articles produced by UK-affiliated authors or co-authors. Articles with UK authors acknowledge not only UK-based funders but also funding from Chinese, American and Japanese organisations among others. We note elsewhere in our response that we have concerns about requiring UK authors to follow restrictive policies even where they are part of an international collaboration, but UK-based researchers not directly funded by UKRI will potentially need a longer implementation period given that many international collaborations will already be planned or underway and may run for several years, with resulting publications only usually emerging thereafter.

Q19. Do you think the proposals outlined in Section A will have any financial cost implications for you or your organisation? **Yes** / No / Don't Know / No opinion.

Please expand, providing evidence to support your view, where possible (2,000 characters maximum, approximately 300 words).

Supporting authors and universities with compliance with this policy will have a direct cost – for instance, in developing the systems and workflows to identify eligible articles, manage fee transactions and later to report on compliance levels. The exact way that UKRI (and future REFs) decide to fund open access – i.e. whether money will sit centrally or with each university – will impact on the scale and form of any new systems and the level of associated cost. While the infrastructure to support OA publishing is already being established, this is requiring

investment that is incremental to existing systems that must still be maintained as long as publishers continue to manage mixed models to serve the needs of different communities worldwide.

Compliance through deposition of peer-reviewed articles in repositories will have serious negative financial implications for learned society publishers such as IOP Publishing as it renders the core services they provide financially unsustainable. Considerable work has gone into the accepted version of an article, with publishers investing in areas such as peer review management as well as the development of trusted, well curated journals in which researchers want their work to be published. IOP Publishing calculates that the costs (direct, variable and overhead) of getting an article to the stage of editorial acceptance represent 49% of the total cost of publishing an article.

To achieve immediate OA of the peer-reviewed version of an article while guaranteeing the continuation of high-quality peer review and publication services will require sufficient funds to be made available to pay for article publication charges, or equivalent, for all UKRI-funded articles and, if the REF after next follows the same policy, for all UK authors.

Q20. Do you think the proposals outlined in Section A of the consultation document will result in financial benefits for you or your organisation? Yes / No / **Don't Know** / No opinion.

Please expand, providing evidence to support your view, where possible (2,000 characters maximum, approximately 300 words).

Wider and faster access to research has the potential to benefit scientific discovery and could therefore benefit our discipline by contributing to a more thriving physical sciences community. These are the people who make up our members, authors and readers. However, a net benefit would only be realised if the transition to OA can be achieved in an economically sustainable way, maintaining a journal ecosystem that can reflect specialist disciplinary communities and manage rigorous peer review within reasonable timeframes, and facilitating the continued international collaboration of researchers that drives so much scientific progress. Around 65% of the IOP's income is generated from our publishing services and this is critical to supporting the charitable work we undertake in support of physics and physicists in the UK and Ireland.

Q21. Can you provide any evidence of a changing balance of costs across research organisations arising from an emphasis on publishing costs rather than read costs? **Yes** / No / Don't know / No opinion.

Please expand (2,000 characters maximum, approximately 300 words).

There would inevitably be economic winners and losers in a shift towards publishing costs. We estimate that during the past three years over 60% of physics research articles acknowledging UKRI funding were produced by only 10 institutions. This illustrates the wider challenge of requiring a small proportion of research-intensive universities to take on the majority of publishing costs. Over the longer term there is and will continue to be a gradual shift in this direction as research-producing institutions increase their recognition of and financial support for OA publishing. However, to achieve a shorter-term transition to OA as set out in UKRI's proposed policy would require centralised and guaranteed funding to support publishing costs. The requirement to transition quickly without such central funding would

result in a cost to research-intensive institutions that they will find extremely difficult to manage and may even lead institutions to prioritise certain types of research for publication on an OA basis at the expense of others.

If the total level of funding for OA remains the same or similar then, to deal with the ‘winners and losers’ issue noted above, funding would need to be redirected away from less research-intensive institutions towards more research-intensive ones.

Q22. Can you provide any evidence on cost increases and/or price rises (including in relation to OA article processing charges (APCs)s and subscriptions) and reasons for these? **Yes** / No / Don't know / No opinion.

Please expand (2,000 characters maximum, approximately 300 words).

Increases in the cost of publishing services – including article publication charges and subscriptions – result from many factors, in particular cost and wage inflation as well as the continued increase in the global volume of articles produced. In recent years researchers' expectations on service standards have grown, and new systems and workflows associated with managing multiple publishing models require additional cost and investment. IOP Publishing has reduced the time taken for peer review and online publication while maintaining rigour and high service standards. Nonetheless, it always endeavours to maintain fair and reasonable price increases where necessary – for instance, maintaining a 1.9% compound average growth rate in our most common OA price since 2011 compared with the UK average CPI inflation rate over the same period of 2.6%.

Q23. Do you think there are steps publishers and/or other stakeholders could take to improve the transparency of publication charges? **Yes** / No / Don't know / No opinion.

Please expand. Views are also welcome on how greater transparency might inform future funding levels (2,000 characters maximum, approximately 300 words).

We agree that any charges should be visible clearly and upfront in the publication process, ensuring prices are understood before researchers submit an article for consideration by a journal or publisher. Furthermore, publishers should be clear about the publication standards they uphold and the general level of service an author can expect to receive. An example of this kind of transparency in relation to IOP Publishing's peer review service can be found here <https://iopublishing.org/wp-content/uploads/2020/02/Peer-Review-infographics-A3-v6.pdf>.

Q24. Regarding UKRI's consideration about restricting the use of its OA funds for publication in hybrid journals (see paragraph 80 of the consultation document), please select the statement that best reflects your views:

- a. UKRI OA funds should not be permitted to support OA publication in hybrid journals
- b. UKRI OA funds should only be permitted to support OA publication in hybrid journals where they are party to a transformative agreement or similar arrangement
- c. UKRI OA funds should be permitted to support OA publication in hybrid journals**
- d. None of the above

e. Don't know

f. No opinion

Please explain and, where possible, evidence your answer (2,650 characters maximum, approximately 400 words).

We consider it critical that UKRI supports OA publication in hybrid journals because this ensures researchers have the freedom to publish in the most appropriate journal for their research and offers the most likely and viable mechanism to enable funders, universities or countries to transition their outputs to full open access.

We estimate that 88% of UKRI-funded physics articles were published in 348 hybrid journals over the past three years, compared to 12% of articles published in 34 fully open access journals. To require a rapid and complete shift of all articles to fully open access journals would involve a major cultural change in authors' publication practices, restrict researchers' choice, and potentially create considerable bottlenecks in research communications as the minority of fully OA journals struggle to efficiently and robustly peer review an order of magnitude more articles.

IOP Publishing and other scholarly publishers have put in place rigorous mechanisms to ensure customers do not pay twice for the same articles, allowing all funding allocated to hybrid OA to support only the expansion of access to scholarly articles. The journals we and other scientific learned societies publish are in almost all cases highly international, publishing a high proportion of articles by researchers funded by organisations which do not yet have the policy requirements or provide the financial support to publish articles on an OA basis. Around one third of IOP Publishing's articles are produced by Chinese authors for example, reflecting China's growing levels of research in physics. This makes an immediate transition or 'flip' of entire journals to OA very difficult to envisage as a realistic and sustainable option. However, where centrally funded organisations or consortia can work with publishers to agree transformative arrangements and put in place funding to cover all of their funded outputs much higher levels of OA publication can be achieved. For example, through coordinated efforts between IOP Publishing, the central science funding agency in Austria, FWF, and the Austrian university library consortium, KEMÖ, we have seen over 90% of research articles from Austria published on an open access basis. Similarly, IOP Publishing's new arrangement with more than 50 UK universities, negotiated through Jisc, enables complete and unlimited OA publishing in 44 IOP Publishing-owned journals for all authors at those institutions from this year.

Q25. To what extent do you agree or disagree that UKRI OA funds should be permitted to support OA costs that support institutional repositories? Strongly agree / Agree / Neither agree nor disagree / Disagree / Strongly disagree / Don't know / No opinion.

Please explain and, where possible, evidence your view (2,650 characters maximum, approximately 400 words).

It is difficult to respond to this in the absence of recent data and analysis from UKRI on how OA funds are being spent by universities. Our perception, however, is that a significant proportion of the funds is being spent on repositories and library staff, and in support of REF compliance, rather than on APCs in respect of articles acknowledging UKRI funding; we believe that greater progress with OA publication of UKRI-funded outputs might have been

made had clearer guidelines on the use of funds been put in place. If sufficient funding and clear guidelines on the use of UKRI OA funds are in place to support OA publication of in-scope research articles, then we take no view on whether remaining funds might be spent in supporting repositories.

Q26. To help accelerate policy adoption, should UKRI introduce any other restrictions on how UKRI OA funds can be used? Yes / **No** / Don't know / No opinion.

Please explain your answer, including any views on how this could be implemented (1,350 characters maximum, approximately 200 words).

Assuming that UKRI is providing sufficient funding to support OA publication of its outputs, as in Q25 above, it should continue to support hybrid OA publication as the most effective means of transitioning to full OA publication of its outputs while working with the grain of UK research publication practices.

Q27. There are many business models that can support OA. A common model for journals is based on APCs, but there are also other models (such as membership models and subscribe to open). Are there changes or alternatives to the present UKRI funding mechanisms that might help support a diversity of OA models? Yes / **No** / Don't know / No opinion.

Please expand (2,650 characters maximum, approximately 400 words).

We consider APCs, or equivalent article-based models, to be the most viable approach to funding high-quality OA publishing because they recognise the high marginal cost of publishing peer-reviewed articles. To ensure rigorous, reproducible science, each article requires detailed assessment and validation by experts in the science as well as publishing standards and ethics, and to enable broad discovery by humans and machines the article must undergo a production process to create robust metadata. Business models such as memberships that allocate no value or cost at the article level inevitably run the risk that services that are critical to scientific integrity and discoverability, such as peer review, could be eroded over time.

The subscribe-to-open model may prove viable over time in certain circumstances but at this point is relatively unproven and relies on sustained yet unpredictable levels of collective action and funding commitments to maintain open access. One funder alone cannot guarantee the open access status of content in a journal operating this model. It is not a permanent transition to open access for a journal but a variation of the subscription model.

Q28. As discussed in paragraph 74 of the consultation document, transformative agreements are one way of moving to OA in a more cost-effective way. Are there approaches to managing transformative agreements or other mechanisms and developments that UKRI should consider to help manage the transition to OA in a way that is cost-effective and offers public value to the UK? **Yes** / No / Don't know / No opinion.

Please expand (2,650 characters maximum, approximately 400 words).

The IOP supports the use of transformative agreements as a sustainable route to increasing the number of OA outputs and IOP Publishing has had such agreements in place in the UK

since 2014. It has negotiated a new read-and-publish agreement with Jisc for 2020 onwards which potentially enables 100% of UKRI-funded outputs to be published OA in 44 IOP-owned journals. However, it is for the individual institutions to decide whether to participate in the agreement and a small number have chosen not to do so, even though their total costs with IOP will be higher if they publish qualifying articles on an OA basis. Closer coordination between UKRI, universities and publishers is required to increase awareness of the value of transformative agreements to institutions and the transition to open access. When considering timelines for implementation of the proposed policy, UKRI must also account for the significant amount of time needed to negotiate and implement transformative agreements.

Q29. Are there any existing or new infrastructure services that you think UKRI should fund the maintenance and/or development of, to support the implementation of its OA policy for research articles? **Yes** / No / Don't know / No opinion.

If yes, please state what these are and explain and, where possible, evidence why UKRI should provide support (2,650 characters maximum, approximately 400 words).

New mechanisms will need to be established that can check dynamically on the compliance status of journals and articles in order for researchers to know where they can publish and for UKRI to monitor compliance levels. These do not currently exist and will take time to scope out and build. The Directory of Open Access Journals (DOAJ) provides a valuable service for identifying fully open access journals and could benefit from further financial support but has expressed clearly that it does not intend to develop a wider compliance checking tool. We note in a previous answer that the OA Switchboard could support communications between funders, universities and publishers about the eligibility of articles for OA funding, and could benefit from UKRI funding.

Q30. To what extent do you agree or disagree that UKRI should provide or support a national shared repository? Strongly agree / Agree / **Neither agree nor disagree** / Disagree / Strongly disagree / Don't know / No opinion.

Please explain and, where possible, evidence your answer (1,350 characters maximum, approximately 200 words).

Building a national shared repository may risk considerable duplication of existing institutional and subject-based repository infrastructure, with subject fields such as physics already relatively well served by existing repositories. We would advise careful review of existing services before undertaking a major national project, and perhaps first exploring the scope and viability of better federation of existing infrastructure.

Q31. Should UKRI require preprints to be made OA where there is a significant benefit with regard to public emergencies? **Yes** / No / Don't know / No opinion.

If yes, is there a recognised definition of 'public emergency' and/or protocols that UKRI should consider if this policy is implemented? (1,350 characters maximum, approximately 200 words.)

We already support the posting of preprints in general but are not aware of a recognised definition of 'public emergency' within the context of physics research.

Q32. Are there any supporting actions that UKRI could take alongside its OA policy to support the use of preprints in all disciplines? **Yes** / No / Don't know / No opinion.

If yes, please expand (1,350 characters maximum, approximately 200 words).

Awareness and engagement with preprints is already widespread in physics and IOP Publishing has clear policies supporting the early sharing of research results through this medium. UKRI could no doubt have some positive impact on the use of preprints in other disciplines that possess active preprint servers by raising awareness of their availability. To have a significant impact on preprint posting, however, the OA policy would need to mandate this, such as by extending the proposed policy to allowing compliance through public sharing of an article preprint on an approved list of preprint servers. This would achieve the stated goal of ensuring immediate access to the results of UKRI-funded research while not undermining publisher investments in peer review.

Section B: Monographs, Book Chapters and Edited Collections

Q33. To what extent do you agree or disagree that the types of monograph, book chapter and edited collection defined as in-scope and out-of-scope of UKRI's proposed OA policy (see paragraphs 96-98 of the consultation document) are clear? Strongly agree / Agree / Neither agree nor disagree / **Disagree** / Strongly disagree / Don't know / No opinion.

If you disagree, please explain your view (2,000 characters maximum, approximately 300 words).

There are several challenges with the definition. Firstly, we do not believe the policy is sufficiently clear on whether it refers specifically to works reporting primary research or also encompasses secondary research and other forms of reference material. Within physics and related fields, monographs will regularly review the state of the art in a given topic and draw on many research projects rather than provide an extended, original report of a single piece of research. In this context, even a reference to UKRI may not indicate that the related research is a central driver for the work but simply be acknowledged in terms of general context or inspiration. Confusion around whether such instances would fall within the remit of the policy could deter publication of some books. A more useful and unambiguous definition of book content in the scope of the policy could be "primary research books and chapters". Secondly, the distinction between academic and trade books or textbooks will be difficult to verify consistently and objectively if primarily based on a judgement about potential breadth of audience and what constitutes marketing as a trade book or textbook. The difference between a specialist and general or student audience is a continuum and not a clear binary distinction with many books crossing over audience types. Further, some books originally commissioned for a defined academic audience may later find a wider trade audience. A relatively small number of academic authors have strong reasons for not wishing to see their work made available as open access on the grounds that they could earn significant income from royalties, especially if their monograph is at the trade or textbook end of the continuum.

Q34. Should the following outputs be in-scope of UKRI's OA policy when based on UKRI-funded doctoral research?

- a. Academic monographs Yes / **No** / Don't know / No opinion
- b. Book chapters Yes / **No** / Don't know / No opinion
- c. Edited collections Yes / **No** / Don't know / No opinion

Please explain your view (1,350 characters maximum, approximately 200 words).

IOP Publishing's decision to publish a book does not distinguish between doctoral or later-career work, and the final published manuscript has often evolved considerably from the original author's proposal. For this reason, our reservations in relation to including doctoral research in scope for the policy echo the general reservations about including books within the OA policy we raise in this response. Critically, there are relatively few established and credible publishers for OA books in the natural sciences and if doctoral or other researchers are required to publish their book OA but unable to find or afford the right publisher then limits will be inevitably placed on the dissemination of important UK knowledge.

Q35. To what extent do you agree or disagree that UKRI's OA policy should include an exception for in-scope monographs, book chapters and edited collections where the only suitable publisher in the field does not have an OA programme? **Strongly agree** / Agree / Neither agree nor disagree / Disagree / Strongly disagree / Don't know / No opinion.

Please explain and, where possible, evidence your view (1,350 characters maximum, approximately 200 words).

If the researcher deems a monograph, book chapter or contribution to an edited collection to be the appropriate medium for communicating the results or analysis of a piece of research funded by UKRI then it is critical that they are not prevented from doing so through lack of a credible publishing options in their specialist field. The proposed compliance route via a repository with a short embargo period is not a viable route because publishers will be unable to financially support publication of a work where they cannot recoup the costs of publication. Book publishing is already a very narrow margin business and it is possible the proposed policy will mean academic publishers can no longer publish books by UK authors as part of their overall programme. Such obstacles to the publication of research could delay or diminish the positive benefits of research on science and society. Also, it is important to note that it is unclear who would decide what constitutes a "suitable publisher".

Q36. Are there any other considerations that the UK HE funding bodies should take into account when defining academic monographs, book chapters and edited collections in-scope of the OA policy for the REF-after-REF 2021? **Yes** / No / Don't know / No opinion.

If yes, please expand (2,000 characters maximum, approximately 300 words). Please see paragraphs 29-31 of the consultation document before answering this question.

The REF policy could incorporate many more books than the UKRI policy so the potential costs of OA publication would increase considerably. We would urge an assessment of the potential practical and financial implications before adoption of the policy on OA monographs.

Q37. Regarding monographs in-scope of UKRI's proposed OA policy, which statement best reflects your view on the maximum embargo requirement of 12 months?

- a. 12 months is appropriate
- b. A longer embargo period should be allowed**
- c. A shorter embargo period should be required
- d. Different maximum embargo periods should be required for different discipline areas
- e. Don't know
- f. No opinion

Please explain and, where possible, evidence your answer. If you answered b, c or d please also state what you consider to be (an) appropriate embargo period(s) (1,350 characters maximum, approximately 200 words).

We acknowledge that different disciplines may require different timescales to recoup their investment in publication of a book but do not feel that embargo periods are the right approach since the timescale will vary even from book to book within a wider programme. Learned

society publishers often use more successful books to subsidise more specialist books which may never prove profitable and yet make a valuable contribution to their field. At IOP Publishing, books are sold digitally in various collections to academic libraries. Less than half of its annual book revenues are generated from the sale of titles under 12 months old and we are certain that even these sales will not be sustained if libraries know all titles will be free after 12 months or another fixed embargo period. Therefore, any move towards a 12-month or even 24-month embargo period has the potential significantly to impair academic book publishing by UK authors.

Q38. Regarding book chapters in-scope of UKRI's proposed OA policy, which statement best reflects your view on the maximum embargo requirement of 12 months?

- a. 12 months is appropriate
- b. A longer maximum embargo period should be allowed**
- c. A shorter maximum embargo period should be required
- d. Different maximum embargo periods should be required for different discipline areas
- e. Don't know
- f. No opinion

Please explain and, where possible, evidence your answer. If you answered b, c or d please also state what you consider to be (an) appropriate embargo period(s) (1,350 characters maximum, approximately 200 words).

Our reasoning for this answer is fundamentally the same as is outlined in our response to Q37. A small number of individual book chapters could in principle be made open access via a repository without jeopardising the economic viability of the wider programme, but this relies on such chapters being an exception. It would not constitute a sustainable approach over the long term.

Q39. Regarding edited collections in-scope of UKRI's proposed OA policy, which statement best reflects your view on the maximum embargo requirement of 12 months?

- a. 12 months is appropriate
- b. A longer embargo period should be allowed**
- c. A shorter embargo period should be required
- d. Different maximum embargo periods should be required for different discipline areas
- e. Don't know
- f. No opinion

Please explain and, where possible, evidence your answer. If you answered b, c or d please also state what you consider to be (an) appropriate embargo period(s) (1,350 characters maximum, approximately 200 words).

We refer to our responses to Q37 and Q38.

Q40. Do you have any specific views and/or evidence regarding different funding implications of publishing monographs, book chapters or edited collections with no embargo, a 12-month embargo or any longer embargo period? Yes / **No**.

If yes, please expand (2,000 characters maximum, approximately 300 words). Please note that funding is further considered under paragraph 110 of the consultation document (question 53).

Q41. To what extent do you agree that self-archiving the post-peer-review author's accepted manuscript should meet the policy requirement? Strongly agree / Agree / Neither agree nor disagree / Disagree / **Strongly disagree** / Don't know / No opinion.

Please explain and your view (1,350 characters maximum, approximately 200 words).

If the embargo period for compliance via self-archiving is 12 months, we strongly disagree for the reasons summarised in our response to Q37.

Publishers such as IOP Publishing invest considerable time and resource supporting authors in the development of a book, often from the point the book is conceived through the creation of a proposal and the preparation of the manuscript. Deposition of the final manuscript for free availability overlooks this investment and will damage publishers' economic interest and ability to provide high-quality book publishing services.

Moreover, there are characteristics associated with a published book, its layout, design, illustrations, video content and other interactivity in the case of an ebook, that often make it significantly more than the text alone, and these characteristics are part of its ability to communicate the subject matter. This means that an approach which requires deposition in a repository of an earlier version to that of the published version is likely to be less acceptable and successful than for journal articles.

Q42. Regarding monographs, book chapters and edited collections, are there any additional considerations relating to OA routes, deposit requirements and delayed OA that the UK HE funding bodies should take into account when developing the OA policy for the REF-after-REF 2021? **Yes** / No / Don't know / No opinion.

If yes, please expand (2,650 characters maximum, approximately 400 words). Please see paragraphs 29-31 of the consultation document before answering this question.

In October 2019, Universities UK published an [evidence review](#) of open access publication of monographs which noted that great care would need to be taken in relation to embargo periods for open access to such works. We urge UKRI to consider the findings of this study and to work with publishers and other stakeholders to undertake further research and to run some pilot projects, better to understand the broad financial and other implications, before finalising any policy.

Q43. To what extent do you agree or disagree with CC BY-ND being the minimum licencing requirement for monographs, book chapters and edited collections in-scope of UKRI's

proposed OA policy? **Strongly agree** / Agree / Neither agree nor disagree / Disagree / Don't know / No opinion.

Please explain and, where possible, evidence your view (1,350 characters maximum, approximately 200 words).

Academic books in fields such as physics more frequently synthesise a body of thought within a research field, and the evolution of the narrative through the work often plays a key role in developing the argument or train of thought. For these reasons we and our authors see a greater case to limit the creation of derivative works that without similar context and structure may misrepresent the information to the detriment of scientific accuracy, integrity and clear interpretation.

Q44. To what extent do you agree or disagree that UKRI's OA policy should include an exception for in-scope monographs, book chapters and edited collections requiring significant reuse of third-party materials? **Strongly agree** / Agree / Neither agree nor disagree / Disagree / Strongly disagree / Don't know / No opinion.

Please explain your view (1,350 characters maximum, approximately 200 words). Questions 45-46 concern how 'significant reuse' may be defined.

The value of a Creative Commons licence within the scientific context is the relatively frictionless ability for others to reuse and build upon a scientific work. Where a monograph, book chapter or edited collection legitimately requires significant reuse of third-party material then considerable confusion and risk of copyright infringement could occur if it is released with part of the work free to reuse while a substantive proportion of the work remained under copyright to a third party.

Q45. To what extent do you agree or disagree that if an image (or other material) were not available for reuse and no other image were suitable, it would be appropriate to redact the image (or material), with a short description and a link to the original? **Strongly agree** / Agree / Neither agree nor disagree / Disagree / **Strongly disagree** / Don't know / No opinion.

Please explain your view (1,350 characters maximum, approximately 200 words)

Images, graphics and data tables in subjects such as physics and materials can frequently be fundamental to the scientific understanding of a claim. If compliance with an OA policy risks regularly undermining the scientific integrity of works then the policy should not take precedence.

Q46. Do you have a view on how UKRI should define 'significant use of third-party materials' if it includes a relevant exception in its policy? **Yes** / No / Don't know / No opinion.

If yes, please expand (2,000 characters maximum, approximately 300 words).

Authors and publishers of academic monographs should be able to determine this on a case by case basis as they will have the keenest understanding, in the specific circumstances, of how fundamental that third-party material is to the integrity of the work and the understanding of the subject matter being conveyed.

Q47. Do you have any other comments relating to licensing requirements and/or the use of third-party materials, in relation to UKRI's proposed OA policy for academic monographs, book chapters and edited collections? Yes / **No**.

If yes, please expand (1,350 characters maximum, approximately 200 words).

Q48. Regarding monographs, book chapters and edited collections, are there any additional considerations relating to licensing requirements and/or third-party materials that you think that the UK HE funding bodies should take into account when developing the OA policy for the REF-after-REF 2021? **Yes** / No / Don't know / No opinion.

If yes, please expand (2,650 characters maximum, approximately 400 words). Please refer to paragraphs 29-31 of the consultation document before answering this question.

The REF policy will apply to a much wider pool of researchers and so, if a similar OA policy is adopted, would amplify the risks we note previously to the sustainability of high-quality book publishing in the UK.

Q49. Which statement best reflects your views on whether UKRI's OA policy should require copyright and/or rights retention for in-scope monographs, book chapters and edited collections?

a. UKRI should require an author or their institution to retain copyright and not exclusively transfer this to a publisher

b. UKRI should require an author or their institution to retain specific reuse rights, including rights to deposit the author's accepted manuscript in a repository in line with the deposit and licensing requirements of UKRI's OA policy

c. UKRI should require an author or their institution to retain copyright AND specific reuse rights, including rights to deposit the author's accepted manuscript in a repository in line with the deposit and licensing requirements of UKRI's OA policy

d. UKRI's OA policy should not have a requirement for copyright or rights retention

e. Don't know

f. No opinion

Please explain and, where possible, evidence your answer. If you selected answer b or c, please state what reuse rights you think UKRI's OA policy should require to be retained (2,000 characters maximum, approximately 300 words). It is not necessary to repeat here, in full, information provided in response to question 12. Please note that views are not sought on whether institutions should hold the copyright to work produced by their employees as this is subject to Section 11 of the Copyright, Designs and Patents Act 1988 and institutional copyright policies.

Book publishers require exclusive rights to publish a book in order to have the ability to recoup the costs associated with their services including editorial selection, peer review, production, promotion and distribution. If publishers are granted only a non-exclusive licence then, due to the already narrow specialist market for academic books and the narrow margins under which

they operate, they will not be able to achieve the necessary level of sales worldwide, including through licensing of rights for non-English language translations, to remain economically sustainable.

Q50. Regarding the timing of implementation of UKRI's OA policy for monographs, book chapters and edited collections, which statement best reflects your view?

- a. The policy should apply from 1 January 2024
- b. The policy should apply earlier than 1 January 2024
- c. The policy should apply later than 1 January 2024
- d. Don't know
- e. No opinion

Please explain and, where possible, evidence your answer. If you selected b or c, please also state what you consider to be a feasible implementation date (2,000 characters maximum, approximately 300 words).

It is right that UKRI proposes a longer implementation for books than for journals, given the long lead-times involved between commissioning and signing of a contract for a book and its final completion and publication, which regularly takes two or more years. It is crucial that at the point of signing a contract – and therefore no later than two years before the policy is due to come into effect – authors not only know the requirements but also have guarantees relating to any funding required for open access publication. More generally, imposing licenses on an academic community that does not appear completely ready to accept them could slow down, not speed up, the successful transition to open access.

Q51. In order to support authors and institutions with policy implementation UKRI will consider whether advice and guidance can be provided. Do you have any suggestions regarding the type of advice and guidance that might be helpful? Yes/ No.

If yes, please expand (2,000 characters maximum, approximately 300 words).

Q52. Regarding monographs, book chapters and edited collections, are there any other considerations that UKRI and the UK HE funding bodies need to take into account when considering the interplay between the implementation dates for the UKRI OA policy and the OA policy for the REF-after-REF 2021 OA? Yes / No / Don't know / No opinion.

If yes, please expand (2,650 characters maximum, approximately 400 words).

Q53. Do you have any views regarding funding levels, mechanisms and eligible costs to inform UKRI's considerations about the provision of funding for OA monographs, book chapters and edited collections in scope of its proposed policy? Yes / No.

If yes, please expand (2,650 characters maximum, approximately 400 words).

There is a fundamental challenge to OA books publishing in the physical sciences because frequently researchers choose this mode of communication to inform and educate fellow

researchers and advanced students rather than to report new research findings and gain the associated career advancement prospects gained from publishing new studies in journals. The information in these books is of particular use for students, early career researchers or for specialists seeking to improve their understanding of an adjacent field, all of which contributes to diversity of ideas and supports the next generation of researchers. This may be restricted if there is a policy to require open access publication, even if funding is made available, since the relatively high levels of funding that publishers would be required to charge to viably publish long-form works on an OA basis may deter researchers from choosing to write these books in favour of concentrating on primary research articles. Even where funding is made available, this may be allocated primarily to the costs of OA journal article publication since in many cases in the physical sciences there is much greater pressure to prioritise journal article publication than book publication.

Q54. To support the implementation of UKRI's OA policy, are there any actions (including funding) that you think UKRI and/or other stakeholders should take to maintain and/or develop existing or new infrastructure services for OA monographs, book chapters and edited collections? **Yes** / No / Don't know / No opinion.

If yes, please state what these are and, where relevant, explain why UKRI should provide support (2,650 characters maximum, approximately 400 words).

UKRI should work closely with book publishers from different disciplines to pilot some funded OA projects to test the required levels of funding, impact on author behaviour and the resultant impact of those works being open access (for instance, whether there is an impact on the level of interest from authors to write books), and for the results to inform future OA policies for academic books.

Q55. Are there any technical standards that UKRI should consider requiring and/or encouraging in its OA policy to facilitate access, discoverability and reuse of OA monographs, book chapters and edited collections? Yes / No / Don't know / **No opinion**.

Please expand (2,000 characters maximum, approximately 300 words).

Q56. Do you have any other suggestions regarding UKRI's proposed OA policy and/or supporting actions to facilitate access, discoverability and reuse of OA monographs, book chapters and edited collections? Yes / **No** / Don't know / No opinion.

If yes, please expand (2,000 characters maximum, approximately 300 words).

Section C: Monitoring Compliance

Q57. Could the manual reporting process currently used for UKRI OA block grants be improved? **Yes** / No / Don't know / No opinion.

If yes, please explain how (2,000 characters maximum, approximately 300 words).

There are opportunities to improve several aspects of the manual reporting process for OA block grants. Firstly, the manual process has enabled inconsistencies to arise in the way different universities are managing their block grants and the extent to which they are dividing their use of those grants across OA publishing, staffing and repository services. This variation in approach may prove problematic in terms of consistent reporting, which in turn may complicate the compliance monitoring process by UKRI. Secondly, there has been limited transparency around how the block grants are being used, and we could envisage increased levels of engagement with new policies, including among researchers and publishers, with greater transparency on all sides. Future reporting systems that facilitate greater transparency of reporting data, without additional administrative requirements placed on institutions, could certainly prove beneficial.

Q58. Except for those relating to OA block grant funding assurance, UKRI has in practice not yet applied sanctions for non-compliance with the RCUK Policy on Open Access. Should UKRI apply further sanctions and/or other measures to address non-compliance with its proposed OA policy? Yes / No / Don't know / **No opinion**.

Please explain your answer (2,000 characters maximum, approximately 300 words).

Q59. To what extent do you agree or disagree with the example proposed measures to address non-compliance with the proposed UKRI OA policy (see paragraph 119 of the consultation document)? Strongly agree / Agree / Neither agree nor disagree / Disagree / Strongly disagree / Don't know / **No opinion**.

Please explain your answer (2,000 characters maximum, approximately 300 words).

Section D: Policy Implications and Supporting Actions

Q60. Do you foresee any benefits for you, your organisation or your community arising from UKRI's proposed OA policy? **Yes** / No / Don't know / No opinion.

Please expand (2,650 characters maximum, approximately 400 words).

The IOP is a strong supporter of open access to scientific research. Similarly to our response to Q20, the IOP's members and authors comprise producers and readers of research in the physical sciences. We recognise the benefit of open access in increasing and accelerating visibility, accessibility and exploitation of that research, and its contribution to a dynamic, productive research and innovation sector. As an example, analysis carried out by IOP Publishing indicates that authors publishing their article in its journals on an OA basis see on average higher downloads and citations than those publishing on a non-OA basis.

However, it is important to consider the potential benefit of the proposed policy in the context of physics research as a global endeavour with a diversity of policy approaches, with UK physics research articles representing around 5% of the global output and UKRI-funded articles representing around 1%. Our members and authors need the freedom to publish collaboratively with researchers from the rest of the world, in journals that are trusted by themselves and by potential future collaborators, for society to gain the full benefit of their collective endeavour. A diversity of approaches and a sufficiently smooth transition are needed to give all sections of the research community time to adapt, without the integrity of their research being compromised, and to safeguard the long-term health of learned societies and the unique benefits they provide to their communities.

Q61. Do you foresee UKRI's proposed OA policy causing and/or contributing to any disadvantages or inequalities? **Yes** / No / Don't know / No opinion.

If yes, please expand, referencing specific policy elements and including any comments on how UKRI could address any issues identified (2,650 characters maximum, approximately 400 words).

While infrastructure and funding for OA publication are currently spread unevenly across institutions and countries worldwide, there will inevitably be inequalities created with the implementation of the proposed policy on UK-based authors. We have noted elsewhere in our response how research-intensive institutions will inevitably incur higher publishing costs under OA models and that these costs will require coordinated and guaranteed funding to ensure there is no disruption to the ability of researchers at these institutions to communicate their research in the manner most appropriate to their field.

More widely, however, the difference in policy approaches in other parts of the world could contribute to two forms of inequality. Firstly, researchers in lower-income countries will generally have limited funding for OA publication and could be *de facto* blocked from publication in many international OA journals, therefore losing out on the advantages of OA that we summarise in our response to Q60. Secondly, as we have also noted in an earlier response, researchers in countries that adopt alternative or potentially conflicting policies may find that collaboration with UK researchers becomes more difficult and vice versa. Any reduction in scope for international collaboration would have a detrimental impact on the strength and international competitiveness of the UK's research and innovation sector and its ability to realise the associated economic and societal benefits. Following the UK's departure

from the EU, it is now more important than ever to strengthen existing and identify new opportunities for international collaboration.

Q62. Do you foresee any positive and/or negative implications of UKRI's proposed OA policy for the research and innovation and scholarly communication sectors in low-and-middle-income countries? **Yes** / No / Don't know / No opinion.

If yes, please expand, referencing specific policy elements and including any comments on how UKRI could address any issues identified (2,650 characters maximum, approximately 400 words).

We address some aspects of this question in our response to Q61. In addition, any reduction in the international development activities the IOP and other learned societies are able to support, associated with implementation of an OA policy which renders our operating model financially unsustainable, could have negative implications for researchers in low-and-middle-income countries.

The IOP's international relationships and reputation enable us to bring together scientists and organisations from around the world, building the cross-border links that fuel scientific discovery and technological innovation. We also work with other national physical societies to shape overseas development programmes; for example, we support the Future STEM Business Leaders programme in Tanzania which encourages secondary school students to apply their education in science to solve problems in the local community through the creation of a business. In addition, IOP Publishing's current economic model enables it to support corresponding authors based in low income countries to publish in its respected peer-reviewed OA journals through a fee waiver, developing opportunities for international collaboration and aiding the dissemination of research.

Q63. Do you anticipate any barriers or challenges (not identified in previous answers) to you, your organisation or your community practising and/or supporting OA in line with UKRI's proposed policy? **Yes** / No / Don't know / No opinion.

If yes, please expand, including any supporting actions you think UKRI could undertake to remove or reduce any barriers identified (2,650 characters maximum, approximately 400 words).

In a previous response we have expressed our significant concern with the proposed policy on compliance through repositories due to the limitations this could place on IOP Publishing's ability to provide the services prior to article acceptances and to recoup the costs of those services. We would urge UKRI to reconsider this aspect of the policy and allow appropriate embargo periods if adequate funding is not provided for full and hybrid OA publication.

The main challenge arising from the policy on compliance through publication in fully OA journals only (i.e. not hybrid OA) is that there is not yet the breadth of sufficiently recognised, high-quality journals to serve the scale and range of demand from researchers, at least in many specialist fields of physics. For instance, of the fully OA journals publishing UKRI-funded physics research over the past three years, 8 out of the 10 largest titles served only two sub-disciplinary communities of physicists.

We entirely support the objective of transitioning towards a fully OA future but any attempt to make this shift too rapidly (and even 'rapidly', with respect to the multi-year timeframes

involved in planning scientific projects in complex, international and large-scale fields such as physics, must be taken in relative terms) and without a plurality of pathways, risks severely limiting researchers' *de facto* publication options.

Q64. Are there any other supporting actions (not identified in previous answers) that you think UKRI could undertake to incentivise OA? **Yes** / No / Don't know / No opinion.

If yes, please expand (2,000 characters maximum, approximately 300 words).

UKRI needs to consider guaranteeing centralised funding for OA publication of all articles with a UK-affiliated author or co-author if it is to ensure all universities can comply with the policy if applied to the REF after next. Where funding is not or cannot be centralised and instead distributed via universities, clearer guidance should be provided to those universities on the proportion of funds they should reserve for specific items such as APCs to ensure eligible research outputs can be published in full or hybrid OA journals.

Q65. Do you foresee any other implications (not identified in previous answers) for you, your organisation or your community arising from UKRI's proposed OA policy? **Yes** / No / Don't know / No opinion.

If yes, please expand (2,000 characters maximum, approximately 300 words).

As is the case for many learned societies, the majority of the IOP's income is generated from our publishing services. This income is critical to the charitable work we undertake in support of physics and physicists in the UK and Ireland.

Learned societies such as ourselves are the sole providers of discipline-specific support in the UK's research and innovation sector and serve as a unique voice for their communities. Through our work, we promote the development of excellent people and ideas within our disciplines to the benefit of society, including by cultivating active specialist and interdisciplinary networks, upholding standards through professional registers and degree accreditation, fostering the development of a diverse and inclusive research environment, galvanising subject communities around national research priorities, establishing and strengthening international collaboration, providing professional development support and resources for teachers, carrying out public outreach and engagement activities, and supporting business growth and innovation.

The IOP strongly supports the principle of open access to research. We also firmly believe that the transition to full open access must be as smooth and inclusive as possible, to preserve the strength and diversity of the UK's learned societies, which are essential to the long-term success of the research base. A transition which does not allow learned societies time to adapt their publishing practices, in a way that best serves the needs of their disciplines, poses a serious threat to our ability to finance the above outlined charitable activity.

Section E: Further Comments

Q66. Do you have any further comments relating to UKRI's proposed OA policy? Yes / No.

If yes, please expand (2,650 characters maximum, approximately 400 words.)

The IOP represents 22,000 physicists in the UK and Ireland. We support physics and physicists using worldwide publishing revenues, more than 90% of which are from overseas. We have considered here both the challenges OA presents to the continued funding by IOP of physics in the UK and Ireland, and the effects on our members who both generate and use academic material.

Our responses have been informed by our knowledge of publishing through IOP Publishing. When considering our responses, it is beneficial to understand that the different routes to OA involve different means by which IOP Publishing covers its publishing costs.

Version of record: Researchers have the option to make the final version of record and any earlier version openly accessible and re-usable immediately upon publication under the 'gold' route. Researchers can publish via this route in any of IOP Publishing's primary research subscription journals on a hybrid OA basis or in one of its fully OA journals. The publishing services provided are funded by APCs and we urge UKRI to make sufficient financial provision for this means to achieving immediate OA for publications arising from its funded research in order to cover journals' operating costs, including the rigorous peer review that IOP Publishing manages at substantial cost.

Accepted manuscript: If a researcher does not publish on a 'gold' OA basis, we also allow the accepted manuscript (the version after completion of peer review and with the journal brand attached but before copy-editing and typesetting) to be made freely available via repositories 12 months after publication. This embargo period is essential to enable IOP Publishing to recoup its investment in peer review and development and maintenance of high-quality journals to which researchers want to submit research through subscription sales and licensing of its journals. Any requirement to make the accepted manuscript freely and immediately accessible would severely undermine its ability to do so.

Preprint: While this consultation relates to peer-reviewed publications, it is important to note that researchers publishing in any IOP Publishing journal can already share the results of their research publicly by depositing a draft paper or preprint in a subject or institutional repository such as *arXiv* prior to or during the peer review process. IOP Publishing has a liberal policy on the distribution of preprints, ensuring researchers can share their work at the earliest possible opportunity. This reflects the fact that IOP Publishing has made no investment in the preprint and should therefore claim no rights over it.

Q67. Do you have any further comments relating to commonality between UKRI's proposed OA policy for outputs acknowledging UKRI funding and the OA policy for the REF-after-REF 2021? Yes / No.

If yes, please expand (2,650 characters maximum, approximately 400 words.)

An extension of UKRI's proposed policy to also apply to the REF after next would significantly increase the number of outputs in scope, exacerbating many of the risks outlined above and requiring a substantial increase in funding to support institutions' compliance. Such an approach is likely to be financially unsustainable and would render many high-quality journals

which are currently essential to research dissemination in the UK without operational business models.

Q68. Do you have any further thoughts and/or case studies on costs and/or benefits of OA?
Yes / No.

If yes, please expand (2,650 characters maximum, approximately 400 words)