

Free for all

Journals providing free online access to readers have been touted as alternatives to subscription-based publications. But, as **John Harnad** argues, such “open access” in physics is already provided by publicly accessible repositories

The purpose of open access (OA) is to make published research freely available to all. One of the pioneering OA publications has been *New Journal of Physics* (NJP), which was launched 10 years ago this month by the Institute of Physics and the German Physical Society (see pp12–13). Instead of charging for subscriptions, NJP and other journals like it levy a publication fee on authors, in return for which their papers are made available to all online free of charge.

Another early leader in the use of such an “author-pays” model of OA publishing is Biomed Central (BMC), a UK-based commercial publisher that was founded in 2000 and recently acquired by Springer. Although BMC focuses on the biosciences, over the last two years it has launched three new online OA physics journals: *PhysMath Central* (PMC) *Physics A* (specializing in high-energy physics), *PMC Physics B* (condensed-matter and atomic physics) and *PMC Biophysics*. These journals require authors to pay an “article processing charge” of €1100 per submission to have their work published online.

In physics, however, OA is already effectively provided via researchers placing copies of their papers in “self-archiving” repositories such as the *arXiv* preprint server. It is difficult to see therefore why authors would choose to pay a fee of €1100 to make the publisher’s version OA when the same work is already available to all via *arXiv* and can be published at no charge to the author in a conventional, refereed, subscription-based journal. The small number of research articles published in these new journals (so far just four in 2008 in *PMC Physics A* and 13 in *PMC Physics B*) suggests that few authors are choosing to pay for OA publishing on such terms.

Lowering standards?

A primary reason for publishing in refereed journals is the “value added” of quality control provided by the peer-review process. However, under the commercial logic of the author-pays approach, rejecting papers reduces the number that are published and



Unlocking potential Is open-access publishing the best way for researchers to disseminate their work?

hence diminishes revenue. Since in this model the author is also a client, there may be a conflict between the desire to maximize revenue and the need to ensure that peer-review standards are being maintained. Of course, a journal’s reputation also provides a positive motive for maintaining quality, and most authors would prefer to publish in journals known for their high standards. But it is not clear, especially for a commercial publisher, what the most effective balance is to ensure viability.

BMC’s editorial guidelines suggest cause for such concern. In their “instructions to editors”, several BMC journals state that “In the absence of compelling reasons to reject, the Journal...recommends acceptance, as ultimately the quality of an article will be judged by the scientific community after its publication.” Of course, peer-review norms in the biomedical field may differ from those in physics; the editor-in-chief of *PMC Physics A*, Ken Peach, has affirmed that no such editorial guidelines are used for that journal and that high peer-review standards are the norm.

Another OA publisher is the Cairo-based Hindawi Publishing Corporation, which has a respectable track record in subscription-based scientific publishing. In 2007 it decided to sell four of its subscription-based journals, convert its 30 others to OA and launch a new range of 120 OA journals in physics, mathematics, engineering and biology. The OA journals are to be operated mainly online but Hindawi also offers print subscriptions. Most

of these journals are still at an early stage of development and have published no more than a handful of articles as yet. Although it seems to be trying to maintain adequate refereeing standards, the publisher has chosen to automate its peer-review process, presumably in order to minimize production costs and keep publication charges to authors relatively low (€200–400 per article for most of the new journals), to a degree that has led to some corners apparently being cut.

For example, roughly half of Hindawi’s 150 journals are dubbed “community based” and have no editor-in-chief in charge, which means there is no-one with suitable scientific expertise determining the choice of the editorial-board members responsible for the selection of referees or overseeing the process. Correspondence with referees is also largely handled through an automated process of e-mail messages. These appear to be written, signed and sent by the board member, but that person may, in fact, have never seen or approved the text. If these procedures are continued unamended, and suitably qualified editors-in-chief are not appointed for these journals, it seems unlikely that many such board members will agree to continue providing their services.

Community initiatives

Another significant movement is the formation of large common-interest groups within the scientific community, such as the SCOAP³ consortium in high-energy physics. Spearheaded by big facilities like the CERN

particle-physics lab near Geneva, it includes member institutions from 18 countries, all of which are prepared to pay the charges for their authors to publish in OA journals under global contracts with publishers negotiated on a competitive basis.

Currently, SCOAP³ is seeking to replace journal subscription charges and publication fees charged to individual authors by a single fund covering all costs for its members. If successful, this strategy could have a huge impact, at least within this particular, highly funded domain. However, the consortium estimates that if it costs €1000–2000 to publish each article in OA form, then the amount that the members of SCOAP³ would actually have to pay to publish all their papers would not diminish, but rather double from €5m to €10m per year. Even if the consortium's strategy succeeds in reducing trends towards ever-increasing journal subscription rates, it is not clear how it could be extended to other domains. After all, few other fields are so coherently defined and reliant on a small number of shared facilities, while publishing their research in only a few journals.

The publishing model

Given that the scientific community provides free of charge not only research papers, but also its refereeing services, it is up to scien-

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tists to exert pressure to ensure that they benefit from possible changes in scientific publishing. Under collective initiatives like SCOAP³, pressure from the community may help reduce exaggerated subscription charges and bring OA publications fees more in line with production costs.

The author-pays OA model might be a reasonable alternative approach to scientific journal publishing provided refereeing standards and editorial practices are not compromised as a consequence and authors' fees are kept low enough to encourage enough

submissions to make such journals viable. However, the shortcomings of the author-pays approach to OA publishing remain clear: it further taxes scarce research funds by imposing publication charges on authors; it excludes authors who are unwilling or unable to pay such charges; and it places the implementation of peer-review standards in competition with the financial viability of the journal. This suggests that it is unlikely that new physics journals of high calibre will emerge under the author-pays model, although some may fill a niche at the lower end of the quality scale.

Although some publishers may choose to add publication-fee-based OA journals to their offerings, most of them will continue producing standard subscription-based journals that coexist constructively with repositories like *arXiv*. In most branches of physics, mathematics and computer science, the availability of OA will continue to be adequately guaranteed by such widely used self-archiving repositories.



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