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Open Access and AAS Publishing: The Big Picture

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The news is out — the main astronomy journals published by the AAS (*ApJ*, *ApJL*, *ApJS*, and *AJ*) will be transitioning to an open access publication model in the year 2022. We here at AAS believe that this is a very big and exciting change! To understand why we think so, though, it helps to know a bit about the inner workings of the scholarly publishing industry. In the rest of this piece, I'll try to give the facts and perspective that help explain the motivations for this transition. For the “executive summary” version, check out [our press release](#) or [the associated video](#), and for specifics about the logistics of the transition, check out [our FAQ](#).

You might already have a big-picture idea of what open access (OA) is all about: no more paywalls — research articles are free for download as soon as they're published. And that's completely correct! While there are a lot of strands of the OA movement, the overarching vision is a world where scientific knowledge is freely available to all comers. We hope that you'll agree that this is a wonderful, noble goal. Because the AAS is a mission-driven non-profit that owns its journals, we can embrace this goal wholeheartedly, and that's fundamentally why we're making the OA transition. *For-profit* academic publishers, which enjoy profit margins that rival companies like Google, Microsoft, or Coca-Cola, have a relationship with the OA movement that is, shall we say, more complicated.

You may also have heard about a whole zoo of different kinds of OA — “green open access”, “gold open access”, “diamond open access”, and more. [Wikipedia gives a breakdown](#), but the precise details are unlikely to be very important to you. For the record: in recent years, the main AAS astronomy journals have been “hybrid” OA, providing authors the option of publishing their article OA immediately, and removing the paywall from all articles 12 months after publication. Starting in 2022, these journals will effectively be fully gold OA. AAS's new *Planetary Science Journal (PSJ)* has been fully gold OA from the start, and the *Research Notes of the AAS (RNAAS)* and the *Bulletin of the AAS (BAAS)* are diamond OA (ooh!), because they are both free to read and free to publish in.

Finally, you might also have heard rumblings to the effect that OA journals can be lower-quality than their peers published under traditional models. This isn't a useful heuristic these days: for instance, it's not like anything about the AAS journals' editorial, peer review, or production processes is going to change with the OA flip on 1 January. But this idea does have *some* roots in historical truth, and to understand those roots we need to talk about money.

Open access models don't dramatically affect the cost of publishing, but they do affect how those costs must be borne. Many journals, like the *Monthly Notices of the Royal Astronomical Society*, fund operations almost entirely through subscriptions — your university library pays [around \\$10,000 a year](#) and you in turn get the right to read *MNRAS*. Open access applied to this model means no paywall, no subscriptions, and thus no revenue: *your entire business model has collapsed*. This is why even non-profit publishers care so much about the daily movements in the [open access wars](#). Non-profits still have to pay their bills!

To publish an OA journal without bankrupting yourself, you need a way to get revenue that isn't subscriptions. While various journals are experimenting with all sorts of revenue-generation schemes, there's basically one mainstream option, known in the business as APCs: article publication (or processing) charges. Instead of readers funding your journal (through their libraries), authors fund it by paying to publish their papers. You can make "pay to publish" sound nefarious if you want to, and that's the origin of the negative connotations of OA that used to be more commonplace. The pay-to-publish model certainly *can* be abused — "predatory" journals exploit authors who are desperate or naïve by charging them thousands of dollars to, metaphorically, drop their manuscripts on the side of the street with a cardboard sign that says "FREE". It's harder to run this scam in the traditional model because libraries aren't going to pay for a journal for which there's no actual demand.

On the other hand, revenue model is not destiny, as we at AAS are proud to attest. These "APCs" may sound very much like the page charges that we charge to publish in our main journals, and that's because they are. If you haven't thought to worry about page charges somehow subverting our scientific integrity, there's no reason to worry about APCs either.

The AAS journals are actually somewhat unusual in that they have historically had a hybrid business model, with revenues coming from both subscriptions and author fees. This is a conscious decision of the community leaders (the AAS [Board of Trustees](#) and [Publications Committee](#)) who set the direction of the AAS publishing group. Author fees and subscription rates are adjusted to cover the operating costs of the journals, with a current breakdown of about a third of the revenue coming from subscriptions. (Unlike some organizations, AAS does not raise its publishing fees to cross-subsidize other activities: the journals are financially segregated from the direct costs of the ongoing operation of the Society.) This balanced approach is motivated by a strong desire to make astronomical research widely available: the cost of a subscription to all

four main AAS astronomy journals is about [one-fifth](#) that of *MNRAS*. In essence, our community has chosen to adopt a system where authors at wealthier institutions and countries subsidize the ability of the less-wealthy to access their research. The AAS staff concur with the community leadership that this is an important way in which we advance [the Society's mission](#).

The launch of the *PSJ* under a gold OA model was another step to advance this mission, and the transition of the main AAS astronomy journals to OA marks a new stage in the journey. As a matter of accounting, it's true that the OA transition requires us to raise direct author fees in the aggregate, although [the fee structure](#) has been designed so that many articles will cost *less* to publish than before. (And your institutional library, or equivalent, should have a few thousand extra dollars to spend!) Importantly, the increase in author fees will cover not only the loss of subscription revenue, but a greatly expanded [waiver program](#) to support researchers who don't have funding to publish their work. In essence, we are striving to open up the astronomical literature even more widely — to readers everywhere, and now many more authors as well — with the support of those who can afford it.

We can't deny that there are some pragmatic factors at play as well. While the early days of OA were associated with predatory journals due to the market incentives mentioned above, there's been a massive shift in the movement as research funders have been persuaded to start requiring that scientists publish in OA venues — massively expanding the market for high-quality OA journals. The most prominent group pressuring funders has been [cOAlition S](#), the outfit behind the relatively well-known "Plan S", and they have been effective. Most recently (just this summer), UK Research and Innovation (UKRI) [announced its new OA policy](#) largely aligned with Plan S goals. The AAS OA transition ensures that our journals will be compatible with these funder mandates. While policymakers in the US have not moved as quickly as in some other countries, the AAS expects to see similar policies emerge in North America. Both NASA and the NSF have expressed support for OA publishing, and last year the White House Office of Science and Technology Policy [began a process of gathering input](#) about US OA mandates. Overall, politicians and the general public are quite justifiably amenable to the idea that government-funded research shouldn't be locked behind paywalls — although they don't always recognize that this attitude has implications for the way they need to allocate research funding.

What's next after the OA transition? We expect the next few years to involve some fine-tuning of the new model as we see how revenues evolve, funder mandates expand, and

most important, how the waiver program is used: we really want to ensure that everyone is able to publish great science in our journals, even if they don't have funding for publication costs. To better understand the success of that effort, we'll seek to gather more detailed information about the demographics of our author pool. What won't change is the fundamental formula that has made the AAS astronomy journals so successful over the years: they are run by scientists, for scientists, with a dedicated staff that strives to deliver the best possible product at the lowest possible cost.