

Nature Toolbox

Leading mathematician launches arXiv 'overlay' journal

Journal that reviews papers from preprint server aims to return publishing to the hands of academics.

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New journals spring up with overwhelming, almost tiresome, frequency these days. But *Discrete Analysis* is different. This journal is online only — but it will contain no papers. Rather, it will provide links to mathematics papers hosted on the preprint server arXiv. Researchers will submit their papers directly from arXiv to the journal, which will evaluate them by conventional peer review.

With no charges for contributors or readers, *Discrete Analysis* will avoid the [commercial pressures](#) that some feel are distorting the scientific literature, in part by reducing its accessibility, says the journal's managing editor Timothy Gowers, a mathematician at the University of Cambridge, UK, and a winner of the prestigious Fields Medal.

“Part of the motivation for starting the journal is, of course, to challenge existing models of academic publishing and to contribute in a small way to creating an alternative and much cheaper system,” he explained in a [10 September blogpost](#) announcing the journal. “If you trust authors to do their own typesetting and copy-editing to a satisfactory standard, with the help of suggestions from referees, then the cost of running a mathematics journal can be at least two orders of magnitude lower than the cost incurred by traditional publishers.”

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Discrete Analysis' costs are only \$10 per submitted paper, says Gowers; money required to make use of Scholastica, software that was developed at the University of Chicago in Illinois for managing peer review and for setting up journal websites. (The journal also relies on the continued existence of arXiv, whose [running costs](#) amount to less than \$10 per paper). A grant from the University of Cambridge will cover the cost of the first 500 or so submissions, after which Gower hopes to find additional funding or ask researchers for a submission fee.

Overlay journals

The idea of an 'overlay' journal that links to papers hosted on a preprint server is not new. There

are arXiv overlay journals in maths already, such as *SIGMA (Symmetry, Integrability and Geometry: Methods and Applications)* and *Logical Methods in Computer Science*.

But Gowers' announcement is likely to widen interest in the idea because of his influence in the mathematics community — and outside it. Three years ago, for instance, a blogpost announcing Gowers' personal boycott of the Dutch publishing giant Elsevier, helped to [spark the 'Cost of Knowledge' movement](#), which has seen more than 15,000 researchers variously pledging not to publish with, referee for or do editorial work for Elsevier.

And in 2013, Gowers announced his involvement with an initiative called the [Episciences project](#), in which mathematicians decided to launch a series of overlay journals. That uses the multidisciplinary archive HAL, a preprint server that mirrors arXiv and is hosted in Lyon, France. One of its leaders, mathematician Jean-Pierre Demailly of the University of Grenoble in France, admits that progress has been sluggish. “Things have been slower than what we dreamed about three years ago — the technical development of the Episciences platform took about a year and a half longer than initially envisioned,” he says. “However things are now coming along nicely.” The initiative now has five or six staff, Demailly says, and operates three computer-sciences journals and one in maths, which charge nothing to publish.

Episciences would have been a suitable platform to support *Discrete Analysis* too, Gowers says, but he happened to have sufficient funds to use the Scholastica software, and opted for that instead. “I hope that in due course people will get used to this publication model,” he adds, and that “the main interest in the journal will be the mathematics it contains”. *Discrete Analysis* will publish in a family of subjects related to additive combinatorics, including topics such as analytical and combinatorial number theory and the mathematical aspects of theoretical computer science. A temporary website has been created on the Scholastica platform to receive submissions, before the journal launches early next year.

Gowers says that the model could be extended to other scientific fields. “For many subjects, where articles are almost purely text and nearly all authors know how to produce nice documents in LaTeX [[a typesetting system commonly used by researchers](#)], this model should work,” he says.

The question, perhaps, is how readily researchers will embrace the model. “Apart from being an arXiv overlay journal, our journal is very conventional, which I think is important so that mathematicians won't feel it is too risky to publish in it,” says Gowers. “But if the model becomes widespread, then I personally would very much like to see more-radical ideas tried out as well” — for example, post-publication review and non-anonymous referees.