[Gowers's Weblog](#)

Discrete Analysis — an arXiv overlay journal

This post is to announce the start of a new mathematics journal, to be called Discrete Analysis. While in most respects it will be just like any other journal, it will be unusual in one important way: it will be purely an arXiv overlay journal. That is, rather than publishing, or even electronically hosting, papers, it will consist of a list of links to arXiv preprints. Other than that, the journal will be entirely conventional: authors will submit links to arXiv preprints, and then the editors of the journal will find referees, using their quick opinions and more detailed reports in the usual way in order to decide which papers will be accepted.

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. However, I hope that in due course people will get used to this publication model, at which point the fact that Discrete Analysis is an arXiv overlay journal will no longer seem interesting or novel, and the main interest in the journal will be the mathematics it contains.

The members of the editorial board so far — but we may well add further people in the near future — are Ernie Croot, me, Ben Green, Gil Kalai, Nets Katz, Bryna Kra, Izabella Laba, Tom Sanders, Jozsef Solymosi, Terence Tao, Julia Wolf, and Tamar Ziegler. For the time being, I will be the managing editor. I interpret this as meaning that I will have the ultimate responsibility for the smooth running of the journal, and will have to do a bit more work than the other editors, but that decisions about journal policy and about accepting or rejecting papers will be made democratically by the whole editorial board. (For example, we had quite a lot of discussion, including a vote, about the title, and the other editors have approved this blog post after suggesting a couple of minor changes.)

I will write the rest of this post as a series of questions and answers.

What is Discrete Analysis, and what is the scope of the journal?

The members of the editorial board all have an interest in additive combinatorics, but they also have other interests that may be only loosely related to additive combinatorics. So the scope of the journal is best thought of as a cluster of related subjects that cannot easily be pinned down with a concise definition, but that can be fairly easily recognised. (Wittgenstein refers to this kind of situation as a [family resemblance](#).) Some of the subjects we will welcome in the journal are harmonic analysis, ergodic theory, topological dynamics, growth in groups, analytic number theory, combinatorial number theory, extremal combinatorics, probabilistic combinatorics, combinatorial geometry, convexity, metric geometry, and the more mathematical side of theoretical computer science. The phrase "discrete analysis" was coined by Ben Green when he wanted a suitable name for a seminar in Cambridge: despite its oxymoronic feel, it is in fact a good description of many parts of mathematics where the structures being studied are discrete, but the tools are analytical in character. (A particularly good example is the use of discrete

Fourier analysis to solve combinatorial problems in number theory.)

We do not want the journal to be a fully general mathematical journal, but we do want it to be broad. If you are in doubt about whether the subject matter of your paper is suitable, then feel free to consult an editor. We will try to err on the side of inclusiveness.

Are there any charges for publication?

No. This journal is what some people call a *diamond* open access journal: there are no charges for readers (obviously, since the papers are on the arXiv), and no charges for authors.

What are the costs of the journal, and how will they be covered?

The software for managing the refereeing process will be provided by Scholastica, an outfit that was set up a few years ago by some graduates from the University of Chicago with the aim of making it very easy to create electronic journals. However, the look and feel of Discrete Analysis will be independent: the people at Scholastica are extremely helpful, and one of the services they provide is a web page designed to the specifications you want, with a URL that does not contain the word "scholastica". Scholastica does charge for this service — a whopping $10 per submission. (This should be compared with typical article processing charges of well over 100 times this from more conventional journals.) Cambridge University has kindly agreed to provide a small grant to the journal, which means that we will be able to cover the cost of the first 500 or so submissions. I am confident that by the time we have had that many submissions, we will be able to find additional funding. The absolute worst that could happen is that in a few years' time, we will have to ask people to pay an amount roughly equal to the cost of a couple of beers to submit a paper, but it is unlikely that we will ever have to charge anything.

Whatever happens, this journal will demonstrate the following important principle: 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. In theory, this offers a way out of the current stranglehold that the publishers have over us: if enough universities set up enough journals at these very modest costs, then we will have an alternative and much cheaper publication system up and running, and it will look more and more pointless to submit papers to the expensive journals, which will save the universities huge amounts of money. Just to drive the point home, the cost of submitting an article from the UK to the Journal of the London Mathematical Society is, if you want to use their open-access option, £2,310. If Discrete Analysis gets 50 submissions per year (which is more than I would expect to start with), then this single article processing charge would cover our costs for well over five years.

Furthermore, even these modest costs could have been lower. We happened to have funds that allowed us to use Scholastica's facilities, and decided to do that, but another possibility would have been the Episciences platform, which has been specifically designed for the setting up of overlay journals, and which does not charge anything. It is still in its very early stages, but it already has two mathematics journals (which existed before and migrated to the Episciences platform), and it would be very good to see more. Another possibility that some people might find it worth considering is Open Journal Systems, though that requires a degree of technical skill that I for one do not possess, whereas setting up a journal with Scholastica has been extremely easy, and I think using the Episciences platform would be easy as well.

Will you have to pay $10 if somebody submits an obviously unsuitable paper?

Could a malevolent person — let us call him or her the Evil Seer — bankrupt the journal by submitting 1000 computer-generated papers? Is it reasonable for us to be charged $10 for instantly rejecting a two-page proof of the Riemann hypothesis that uses nothing more than high-school algebra? I have taken this up with Scholastica, and they have told me that in such cases we just need to tell them and will not be charged.

Will articles in the journal be recognised as "real" publications?

Yes. As already mentioned, the articles will be peer-reviewed in the traditional way. There will also be a numbering system for the articles, so that when they are cited, they look like journal articles rather than "mere" arXiv preprints. They will be exclusive to Discrete Analysis. They will have DOIs, and the journal will have an ISSN. Whether the journal will at some point have an impact factor I do not know, but I hope that most people who consider submitting to it will in any case have a healthy contempt for impact factors. We will adhere to the "best practice" as set out in MathSciNet's Policy on Indexing Electronic Journals, so our articles should be listed there and on Zentralblatt — we are in the process of checking whether this will definitely happen.

Is Discrete Analysis the first pure arXiv overlay journal in mathematics?

No. Another example is SIGMA (Symmetry, Integrability and Geometry: Methods and Applications), though as well as giving arXiv links it hosts its own copies of its articles. And another, which is a mathematically oriented computer science journal, is Logical Methods in Computer Science. I would guess that there are several others that I am unaware of. But one can at least say that Discrete Analysis is an early adopter of the arXiv overlay model.

When will the journal start?

The current plan is that people are free to submit articles immediately, via a temporary website that has been set up for the purpose. We hope that we will be able to process a few good papers quickly, which will allow us to have an official launch of the journal in early 2016 with some articles already published.

What standard are you aiming at?

It is difficult to be precise about this, especially before we have received any submissions. However, broadly speaking, we would like to publish genuinely interesting papers in the areas described above. So if you have proved a result that you think is likely to interest the editors, then please consider Discrete Analysis for it. We would like the journal to be consistently interesting, but we do not want to set the standard so high that we do not publish anything.

Will the editors of the journal be allowed to submit papers to it?

It would be a pity to exclude the editors from the journal, given that their areas of research are by definition suitable for it. Our policy will be to allow editors to be authors, but to apply slightly more rigorous standards to submissions from editors. In practice, that will mean that in

borderline cases a paper will be at a disadvantage if one of its authors is an editor. It goes without saying that editors will be completely excluded from the discussion of any paper that might lead to a conflict of interest. Scholastica's software makes it very easy to do this.

We have not (yet) discussed the question of whether I as *managing* editor should be allowed to submit to the journal, but I shall probably follow the policy of many reputable journals and avoid doing so (albeit with some regret) and send any papers that would have been suitable to other journals with publication models that I want to support.

What is the point of a list of links? Can't people look up preprints for themselves?

An obvious partial answer to this question is that the list of links on our journal website will be a list of certificates that certain arXiv preprints have been peer reviewed and judged to be of a suitable standard for Discrete Analysis. Thus, it will provide information that the arXiv alone does not provide.

However, we intend to do slightly more than this. For each paper, we will give not just a link, but also a short description. This will be based on the abstract and introduction, and on any further context that one of our editors or referees may be able to give us. The advantage of this is that it will be possible to browse the journal and get a good idea of what it contains, without having to keep clicking back and forth to arXiv preprints. In this way, we hope to make visiting the Discrete Analysis home page a worthwhile experience.

Another thing we will be able to do with these descriptions is post links to newer versions of the articles. If an author wishes to update an article after it has been published, we will provide two links: one to the "official" version (that is, not the first submitted version, but the "final" version that takes into account comments by the referee), and one to the new updated version, with a brief summary of what has changed.

How secure will the articles you publish be?

The mathematical community is now sufficiently dependent on the arXiv that it is very unlikely that the arXiv will fold, and if it does then there will be greater problems than the fate of Discrete Analysis. However, in this hypothetical situation, we will download all the articles accepted by Discrete Analysis, as well as those still under review, and find another way of hosting them. Note that articles posted to the arXiv are automatically uploaded to HAL as well, so one possibility would be simply to change the arXiv links to HAL links. As for Scholastica, they perform regular backups of all their data, so even if their main site were to be wiped out, all the information concerning their journals would be recoverable. In short, barring a catastrophic failure of the entire internet, articles published in Discrete Analysis will be secure and permanent.

What about open peer review, post-publication reviews, etc.?

The editors have widely differing views about these sorts of ideas. For now, we are taking a cautious approach, trying to make the journal as conventional as possible so as to maximize its chances of becoming successful. If at some point in the future we decide to experiment with newer methods of peer review, we shall continue to be cautious, and will always give authors

the chance to opt out of them.

How do I submit a paper to Discrete Analysis?

First, post it on the arXiv, selecting the CC-BY-4.0 option when it asks you which licence you want to use (this is important for ensuring that the journal complies with the open-access requirements of various funding bodies). Then go to the journal's temporary website, click on the red "Submit Manuscript" button in the top right-hand corner, and follow the simple instructions. There are one or two aspects of the submission process that are not in their final form but will be soon. For example, for the next couple of weeks it will be necessary to upload a pdf of your paper, but soon all that will be required is the arXiv URL. Also, any covering letter will have to be made into a pdf file and uploaded as a supporting file; in due course, there should be a text box that you can type into directly. I hope you will not be put off by these minor and temporary inconveniences. If they are a deal-breaker for you, then send an email to an editor and we will enter your article into the system for you. (But ideally we won't have to do this too often …)

Not everybody reads blogs, so one way that you can support the journal is to bring it to the attention of anybody you know who might conceivably have a suitable paper for it. The sooner we can build up an initial list of interesting papers, the sooner the journal can become established, and the sooner the cheap arXiv overlay model can start competing with the expensive traditional models of publication.

This entry was posted on September 10, 2015 at 11:12 am and is filed under Mathematics on the internet, News. You can follow any responses to this entry through the RSS 2.0 feed. You can leave a response, or trackback from your own site.

26 Responses to "Discrete Analysis — an arXiv overlay journal"

1. *Ashley* Says:
   September 10, 2015 at 1:51 pm | Reply This is fantastic news and I hope this becomes one of many high-quality arXiv overlay journals in mathematics. One small suggestion: take care that the journal is correctly listed as "open access" in the relevant databases and listed as compliant with, for example, UK research council rules.
   For example, on the "Funders & Authors Compliance Tool" (http://www.sherpa.ac.uk/fact/) the status of the "diamond" open access journals Electronic Journal of Combinatorics and Theory of Computing is given as "unclear" – this might discourage the nervous from submitting.
   It's hard to imagine how an arXiv overlay journal could be considered non-open-access, but nevertheless…

   ○ *gowers* Says:
     September 10, 2015 at 2:09 pm Thank you for that important tip. How ridiculous that there could be any doubt about the status of the Electronic Journal of Combinatorics, but if that is the case then we'll definitely need to try to do something about it.

   ○ *Jane* Says:

September 11, 2015 at 10:01 am Thank you for your support. I have checked both titles in FACT, and we clearly state that they are open access, but that their policies are unknown. I have now added them to our list to investigate further. Please do submit details of Discrete Analysis via our feedback forms and I will look into adding your new title to our services as well.

- ○ *Colin Rust* Says:

    September 12, 2015 at 3:51 pm It's hard to imagine how an arXiv overlay journal could be considered non-open-access, but nevertheless…

    Actually, I think there can be an issue and it centers on rights for commercial use. The arXiv supports several types of licenses, including CC BY-NC-SA 4.0 that does not allow commercial use. As Tim notes above, for some funders it's important to select CC BY-SA 4.0.
    It looks like this is a real issue for FACT. For example, here is an arXiv overlay journal that if you search in FACT with the UK research council as a funder, it says:
    This open access journal has an unacceptable Creative Commons Attribution Non-commercial Share-alike (CC-BY-NC-SA) Licence.

    But it does note that you can submit to an open access repository (so, arXiv with the right license choice).
    Jane, it's great that as a representative of FACT you've weighed in here. For arXiv overlay journals, there's a lot of potential for confusion here, because of the different license journals. Perhaps, for such journals, you could give a more specific message indicating the author should choose CC BY-SA license at the time of submitting to the arXiv.

2. *Mark C. Wilson* Says:

    September 10, 2015 at 6:46 pm | Reply Hi TIm
    This looks interesting. As I mentioned to you before, it seems to compete directly with OJAC (area and editor overlap), but perhaps there is room for more than one "free" journal in such a specialized area. In any case, I am no longer associated with OJAC so it is none of my business.
    On a slightly related note, the Ombudsman request to force universities to reveal payments to Evil Seer et al is still in progress in NZ.

3. *New Publishing Model in Mathematics « Homolog.us – Bioinformatics* Says:

    September 10, 2015 at 9:04 pm | Reply […] Discrete Analysis — an arXiv overlay journal (h/t: @lpachter) […]

4. *David Roberts* Says:

    September 10, 2015 at 10:53 pm | Reply (Commenting to subscribe)
    Speaking of FoI, was there any more to come from your attempts at this, Tim? I recall your last post on this ended with "a watch this space". I forgot to ask when I bumped into you in Cambridge. If this is too off-topic, then a reply by other means is fine.

5. *louigiaddario* Says:

    September 11, 2015 at 2:54 am | Reply I guess the DOI (for example) will refer to a specific

version of the arXiv paper? Will you request that authors not update their arXiv submission subsequent to the "published" version?

- ○ *gowers* Says:

  September 11, 2015 at 7:36 am As I say in the post above, there will be an official "version of record", because for many people that is important. But we will encourage authors to update their arXiv preprints if they can improve them. In such cases, the version of record will remain the version of record (to avoid problems with citation) but the journal webpage will also provide a link to the updated version with a brief indication of what has been improved.

- ○ *louigiaddario* Says:

  September 12, 2015 at 3:10 am Sorry, I overlooked that paragraph of your post!

6. *telescoper* Says:

   September 11, 2015 at 8:38 am | Reply Reblogged this on In the Dark and commented: Good to see this experiment getting under way. Announcements about a similar (though not identical) initiative for Astrophysics and Cosmology (currently under beta testing) will appear shortly…

   - ○ *gowers* Says:

     September 11, 2015 at 8:55 am Please let me know when the announcement does appear!

7. *Anton Garrett* Says:

   September 11, 2015 at 12:35 pm | Reply Excellent news. Viva la revolucion! You might add a sentence stating explicitly that your journal page will be free to view and not behind any paywall.
   What is arXiv policy on modifications to papers lodged there? Did you contact arXiv about this project and if so are they happy with the situation?
   The vested interests you are competing with – and high time that they faced competition – include not only commercial publishers but learned Institutes of various subjects in various countries. They derive a lot of their income from publishing and we can expect plenty of cant about how they will no longer be able to provide such a good service to their subject when they in fact long ago became a vested interest.
   Congratulations.

8. *Alberto Abbondandolo* Says:

   September 11, 2015 at 4:46 pm | Reply Wonderful initiative! It makes me wish to be a more discrete analyst and be able to contribute. But I am confident that your example will be followed by other people, and that soon we will have a wide spectrum of high level journals of this kind.
   Are you also thinking of having a file with a specific LaTeX style, that authors of accepted papers can/must incorporate in their final version for the arXiv? Maybe something with the name of the journal, the DOI of the article, etc.? This might increase the visibility of the journal, since people browsing the arXiv would immediately recognize from the graphics papers published in Discrete Analysis, also without

looking at the Journal-ref.

And a question about licences: Many of us post a paper on the arXiv and only after some time start thinking about a suitable journal. Does the arXiv allow one to change the license type to CC-BY-4.0 when making a new version?

- *David Roberts* Says:

  September 12, 2015 at 2:39 am Yes, you can change the license with each new version, in either direction (more and less restrictive).

9. *Phillip Helbig* Says:

   September 11, 2015 at 5:06 pm | Reply *"What is arXiv policy on modifications to papers lodged there?"*

   ArXiv has long (always?) had "replacement", meaning submitting a changed version. Previous versions are always available. A link without a version number goes to the latest version. There is no concept of a "version or record" at arXiv.

10. *samim (@samim)* Says:

    September 12, 2015 at 7:15 am | Reply This is a great idea. We´ve been doing related things with open-source project GitXiv: http://gitxiv.com/ & https://medium.com/@samim/gitxiv-collaborative-open-computer-science-e5fea734cd45

11. *Timothy Gowers has launched a new arXiv overlay journal | The Aperiodical* Says:

    September 12, 2015 at 9:10 am | Reply […] Timothy Gowers has announced on his blog a new journal, Discrete Analysis, of which he will be the managing editor. Rather than a […]

12. *Laurent Romary* Says:

    September 12, 2015 at 11:23 am | Reply I do not know how far you are with the technical platform, but have you thought of testing the Episciences.org environment. It is an endeavor of several public institutions, free of charge and with all garanties concerning you keeping the ownership of title and also reviewers' comments (an issue in several private initiatives). It is already connected to ArXiv and has been tested on several journals already. At your disposal to make you play with the sandbox and chat about this.

13. *Pit* Says:

    September 12, 2015 at 1:14 pm | Reply this looks like an interesting development but I miss any support of arXiv who hosts the papers, currently the 'discrete analysis' looks more like a parasite of arXiv, or do I miss something?

    - *Laurent Romary* Says:

      September 12, 2015 at 1:20 pm This is the whole idea of an overlay journal. You rely on one or several publication repository to carry out overlay peer review. Th only support you need is a) make sure that the repository is sustainable and b) that it offers a basic interface to provide adequate meta-data and also update the information attached to the papers when it is accepted in the journal. This is what we do with Episciences, which overlays ArXiv, HAL (in France) and the publication repository of the CWI (in the Netherlands).

- ○ *Anonymous* Says:

    September 12, 2015 at 2:25 pm On this point, arXiv is funded by both the Simons Foundation and contributions from member institutions – so the institutions of the majority of those submitting articles to the journal will have contributed to the running costs of arXiv.

14. *Weekend reads: Backstabbing; plagiarism irony; preprints to the rescue - Retraction Watch at Retraction Watch* Says:

    September 12, 2015 at 2:30 pm | Reply […] new journal, Discrete Analysis, will "be purely an arXiv overlay journal," writes Tim Gowers. "That is, rather than publishing, or even electronically hosting, […]

15. *One future for journal publishing | Logic Matters* Says:

    September 12, 2015 at 8:32 pm | Reply […] his blog, Tim Gowers has announced a new journal, Discrete Analysis for which he is to be the managing editor. The content of the journal probably won't be of […]

16. *John Barrett* Says:

    September 13, 2015 at 1:47 pm | Reply Great work. One thing to be sure of is that you provide a publication date for articles. I have used an electronic journal that does not provide a publication date and this has caused problems with grant reviews and institutional reviews that demand to know what publications occurred in a particular window of time.

    I know that "publication date" does not strictly make sense here because you are not actually publishing the article! However you should reinterpret that as the date at which the journal publishes the title, abstract and link to arXiv.

17. *Science's best friends - Ocasapiens - Blog - Repubblica.it* Says:

    September 13, 2015 at 1:53 pm | Reply […] ieri Tim Gowers – medaglia Field ecc. famoso per aver lanciato Boycott Elsevier – ha annunciato di aver fondato Discrete Analysis, con un comitato editoriale formato da Terry Tao, Julia Wolf e […]