Mathematicians' Views on Current Publishing Issues: Survey Results
Outline

- Motivation and methods
- Results
  - collaboration communication tools and methods
  - arXiv and other sharing mechanisms
  - authors’ journal publishing decisions
  - Open Access journals and hybrids
  - mathematics culture: how open is it?
- Conclusions and questions
Scholarly Communication Changes

- Technology-enabled opportunities
  - arXiv.org
  - Polymath blog
- Evolving dynamic between traditional publishing and the research community
  - new scholar-led journals
  - NIH requirement that funded research be made publicly accessible
Research questions

- How much are mathematicians participating?
- What aspects of mathematics culture apply?
- Where are mathematics publishing and scholarly communication headed?
Survey methods

- Online survey December 2010
- UMSurvey using individual tokens
- Random sample of 3,045 drawn from 200k+ Web of Science mathematics authors
- 627 responses ≥ 21%
- maximum margin of error (at the 95% confidence level) is approximately ±4%
Collaboration Communication

<table>
<thead>
<tr>
<th>Online methods/tools used by collaborators to develop ideas and/or write up joint research</th>
<th>60</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>a file-sharing space, such as Netfiles, Dropbox, Syncplicity [&amp; Subversion]</td>
<td>60</td>
<td>10%</td>
</tr>
<tr>
<td>Google Groups or Yahoo! Groups</td>
<td>54</td>
<td>9%</td>
</tr>
<tr>
<td>a collaborative writing website, such as Google Docs, Zoho, ScribTeX</td>
<td>32</td>
<td>6%</td>
</tr>
<tr>
<td>a wiki, such as PBwiki/Pbworks</td>
<td>15</td>
<td>3%</td>
</tr>
<tr>
<td>a citation-sharing tool, such as del.icio.us, RefWorks, Zotero</td>
<td>11</td>
<td>2%</td>
</tr>
<tr>
<td>a course management system, such as moodle, Blackboard, WebCT</td>
<td>10</td>
<td>2%</td>
</tr>
<tr>
<td>a blog, such as The Polymath blog</td>
<td>7</td>
<td>1%</td>
</tr>
<tr>
<td>LinkedIn or Facebook</td>
<td>6</td>
<td>1%</td>
</tr>
<tr>
<td>Twitter</td>
<td>2</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

“Do you expect that your use of online research collaboration tools will change or stay the same, in the next year?”

- Decrease 2%
- Stay the same 65%
- Increase 34%
Post research papers on own website

- Usually or Always: 47%
- Sometimes or Rarely: 34%
- Never: 19%

Familiarity/activity with the arXiv

- Not aware: 12%
- Aware but never used: 15%
- Read papers by others: 17%
- Co-author has posted joint paper: 9%
- Posted own paper(s): 17%
- Regularly post own papers: 30%

Total: 56%
Depositing in the arXiv

TOP “YES” FACTORS

1. Early dissemination (73%)
2. Better availability/visibility of previously published work (57%)
3. Availability/visibility of work not previously published (56%)
4. No access costs to readers (56%)
5. Responsibility to share research (46%)
6. Reputation of the arXiv (45%)
7. Long-term availability (44%)
8. Greater WWW visibility (43%)
9. Standard practice in the field (42%)
10. Own professional reputation (34%)

TOP “NO” FACTORS

1. Satisfaction with traditional journals/Insufficient advantages/Standard practice in field/Never thought of it (66%)
2. Unsure if publication contracts allow (24%)
3. Time/difficulty of deposit process
4. Easier for others to plagiarize
5. Harm to future publication prospects
6. Others <10%
### Institutional Repositories

**Familiarity/activity with institution's OA repository**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution doesn't have one</td>
<td>9%</td>
</tr>
<tr>
<td>Not aware of one</td>
<td>55%</td>
</tr>
<tr>
<td>Aware but never used</td>
<td>14%</td>
</tr>
<tr>
<td>Read papers by others</td>
<td>7%</td>
</tr>
<tr>
<td>Co-author has posted joint paper</td>
<td>3%</td>
</tr>
<tr>
<td>Posted own paper(s)</td>
<td>4%</td>
</tr>
<tr>
<td>Regularly post own papers</td>
<td>9%</td>
</tr>
</tbody>
</table>

\[16\%\]

**arXiv depositor ≠ IR depositor**
Important factors when submitting research papers for publication in a journal:

1. The journal's quality and reputation*
2. Speed of publication
3. Inclusion in literature indexes*
4. Large number of readers
5. No page charges or other author fees*

*“Very important” to majority
An Open Access (OA) journal is defined as a journal that makes all its content immediately and freely available to any reader, with production costs covered by some means other than the usual e-journal subscriptions paid by libraries. Have you published a research paper in an OA journal?

- Yes 34%
- No 46%
- Not sure 19%
<table>
<thead>
<tr>
<th>OA “YES” TOP FACTORS</th>
<th>ALL JOURNAL TOP FACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The OA journal's quality</td>
<td>1. The journal's quality</td>
</tr>
<tr>
<td>and reputation</td>
<td>and reputation</td>
</tr>
<tr>
<td>2. Speed of publication</td>
<td>2. Speed of publication</td>
</tr>
<tr>
<td>3. No page charges or</td>
<td>3. Inclusion in literature</td>
</tr>
<tr>
<td>other author fees</td>
<td>indexes</td>
</tr>
<tr>
<td>4. Inclusion in literature</td>
<td>4. Large number of readers</td>
</tr>
<tr>
<td>indexes</td>
<td></td>
</tr>
<tr>
<td>5. Large number of readers</td>
<td>5. No page charges or</td>
</tr>
<tr>
<td></td>
<td>other author fees</td>
</tr>
</tbody>
</table>
Open Access Journals

“No” or “Not Sure” factors:

1. The OA journal's quality and reputation
2. Not aware of any OA journals in the field
3. Unwillingness to pay requested author fees
4. Satisfaction with traditional journals
5. Unsure if included in literature indexes
6. Unsure of long-term availability
7. Inadequate peer review procedures
8. Had not previously heard of the OA journal model
9. Inability to pay requested author fees
10. Tenure and/or promotion criteria
11. No print version of the OA journal
12. Easier for others to plagiarize your work
13. Availability to inappropriate readers
A hybrid OA journal is a journal in which some articles are only available to subscribers or readers at subscribing institutions, and some articles are freely available to all readers, usually through the payment of an author fee. Have you opted to publish a research paper as Open Access (OA) in a hybrid OA journal?

Yes 18%
No 58%
Not sure 24%
Important author rights when publishing research papers in a journal:

1. Email copies to others*
2. Re-use part or all of the paper in future papers/books*
3. Post an author-created version on website*
4. Distribute photocopies to students*
5. Others at university use copies in teaching
6. Deposit an author-created version in the arXiv or other online repository*
7. Post the publisher's version on own website
8. Copyright

*“Very important” to majority
16% have tried for more author rights by
- attaching an addendum
- amending contract terms/otherwise negotiating
- granting a license to publish
- shopping for a different journal/publisher
- refusing to sign

When negotiating, 92% usually or always successful
In your opinion, how likely are mathematicians to make their research openly accessible, compared with researchers in other science fields?

Less likely 9%
Equally likely 26%
More likely 65%

Why?
Why “more likely to share“? 
- little prospect for economic gain
- less competitiveness
- low financial investment
- focus on ideas rather than data
- math as generally open culture
- existing mechanisms for sharing
- professional recognition
- progress depends on collaboration
- “nice people”
Conclusions & questions

- Surprises
- Lack of surprises
- Further analysis needed
- Your questions/comments?

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Previous studies


- University of California Office of Scholarly Communication; California Digital Library eScholarship Program. “Faculty Attitudes and Behaviors Regarding Scholarly Communication: Survey Findings from the University of California.” 2007.