

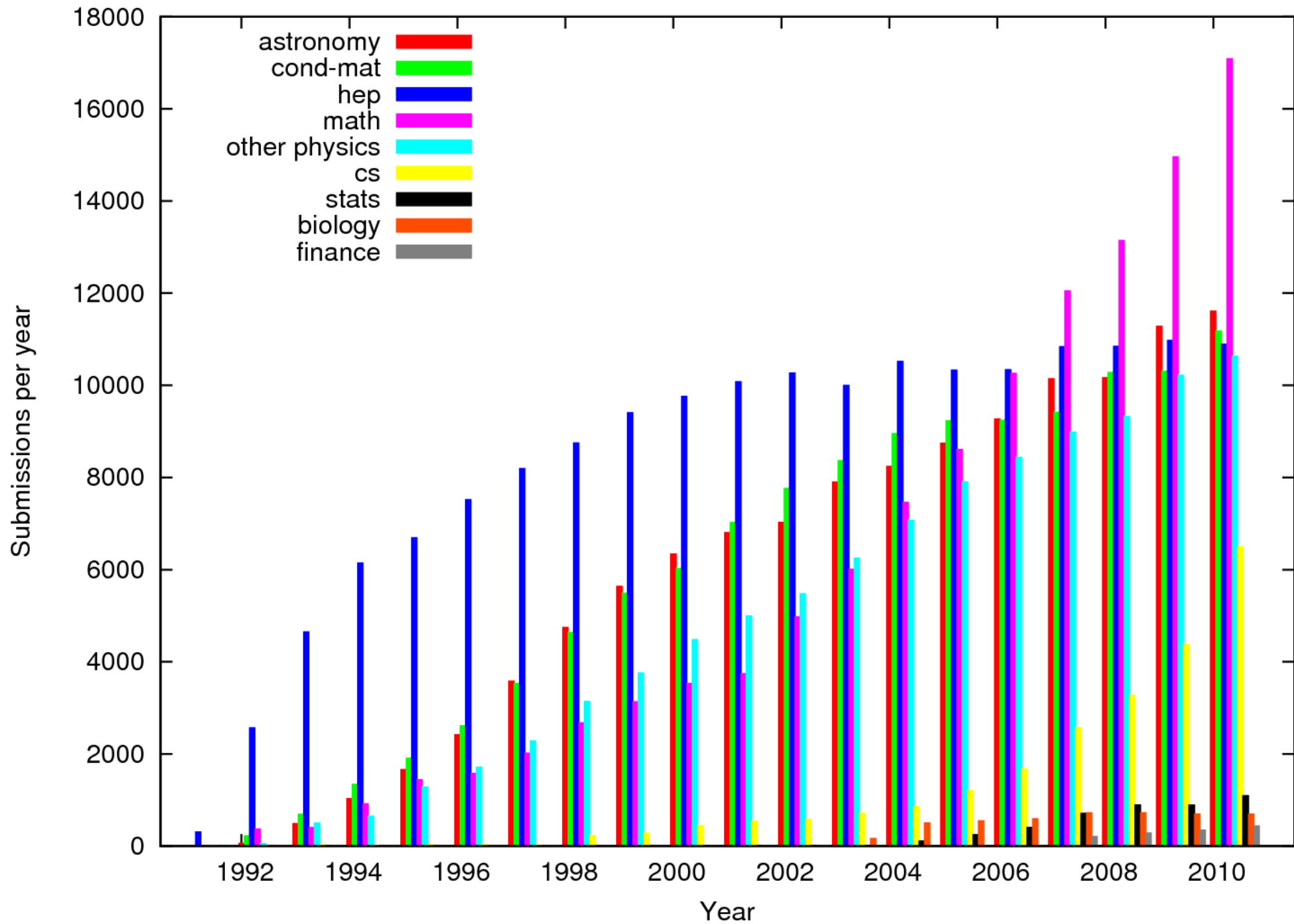
arXiv: Integrating disciplinary repositories with multiple partners and services

Simeon Warner (Cornell)

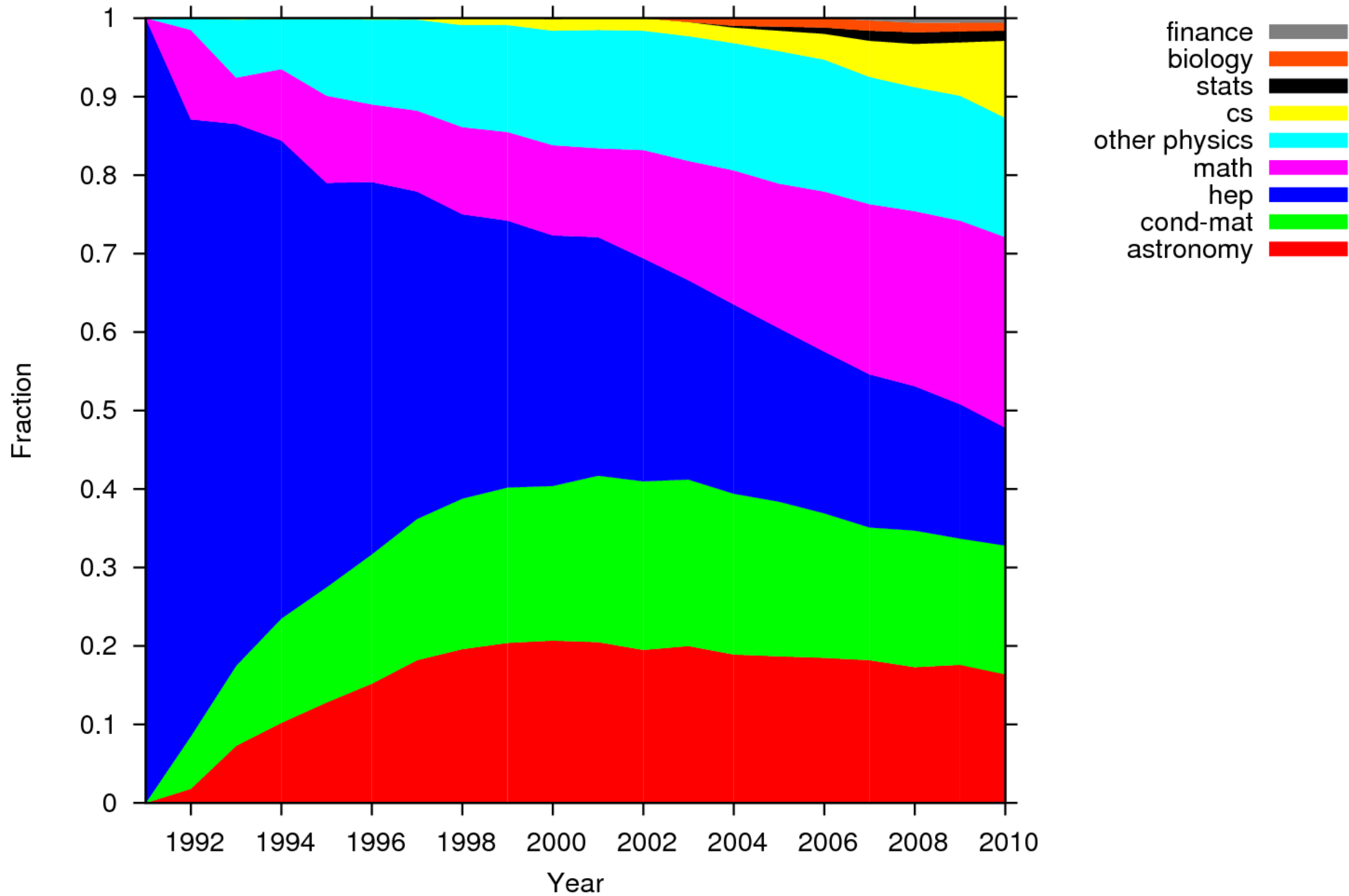
some slides from Thorsten Schwander

JCDL 2011, Workshop on Disciplinary Repositories and Field-Specific
Digital Libraries, Ottawa, Canada, 16-17 June 2011





Fraction of arXiv submissions by subject area



Bibliographic data

- Authors may submit DOI and/or journal ref.
- 683k articles:
 - 50% have DOI
 - 48% have journal ref.

- Most from or
“corrected” by ADS
& SPIRES

Source	Number of articles
ADS	207696
SPIRES	132525
Elsevier	8346
PTP	234

DBLP

- Harvest DBLP data, link to author profiles

The screenshot shows the arXiv.org page for the article "ChemXSeer Digital Library Gaussian Search" (arXiv:1104.4601). The page is from Cornell University Library. The main content area contains the title, authors (Shibamouli Lahiri, Juan Pablo Fernández Ramírez, Shikha Nangia, Prasenjit Mitra, C. Lee Giles, Karl T. Mueller), and a detailed abstract. On the right side, there is a "Download:" section with links for PDF and other formats, a "Current browse context:" section showing the article is in the "cs.DL" category, and a "References & Citations" section with a link to "DBLP - CS Bibliography". A red circle highlights the "DBLP - CS Bibliography" link, and a red arrow points from it to the second screenshot.

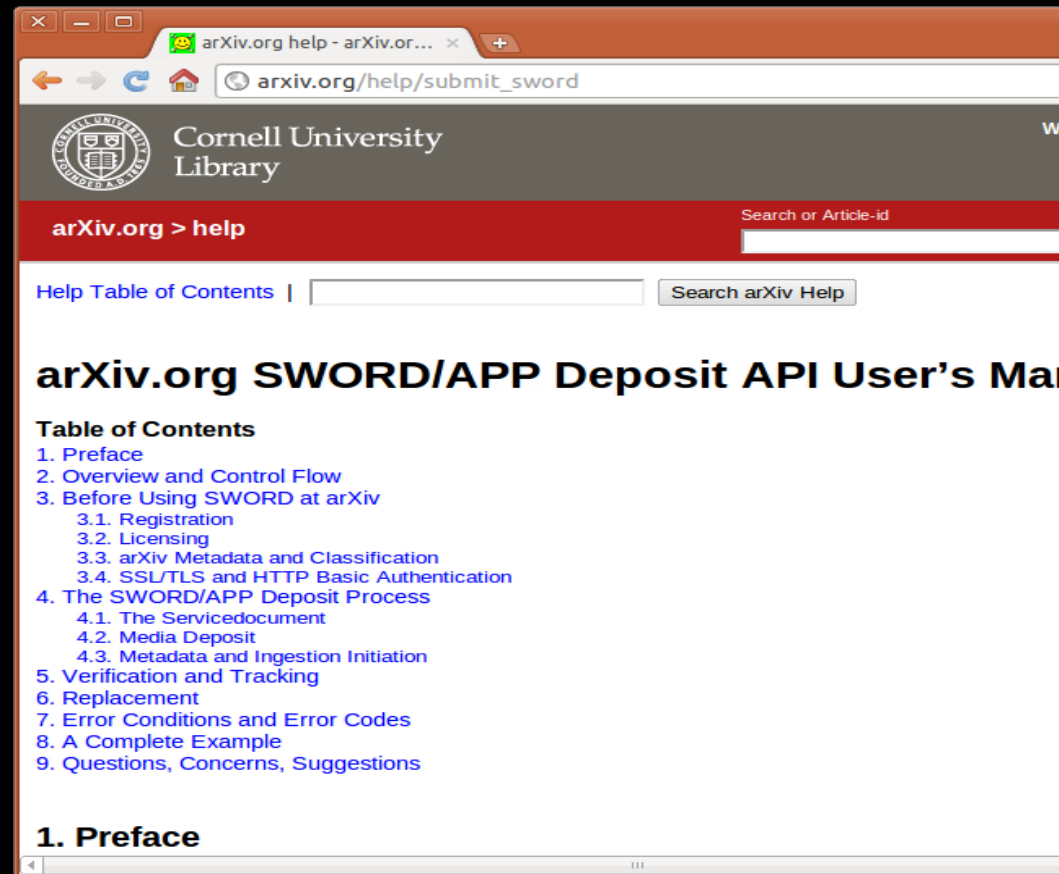
The screenshot shows the DBLP author profile page for Prasenjit Mitra (dblp.uni-trier.de/db/indices/a-tree/m/Prasenjit_Mitra). The page displays a list of publications from the DBLP Bibliography Server. The first publication listed is "Shibamouli Lahiri, Prasenjit Mitra, Xiaofei Lu: Informal Supervision. *CICLing (2) 2011*: 446-457". Other publications listed include "Qi He, Daniel Kifer, Jian Pei, Prasenjit Mitra, C. Lee Giles: Informal Supervision. *WSDM 2011*: 755-764" and "Bingjun Sun, Prasenjit Mitra, C. Lee Giles, Karl T. Mueller: Formulae and Chemical Names in Digital Documents. *WSDM 2011*: 755-764".

Author Ids, Facebook and Widgets

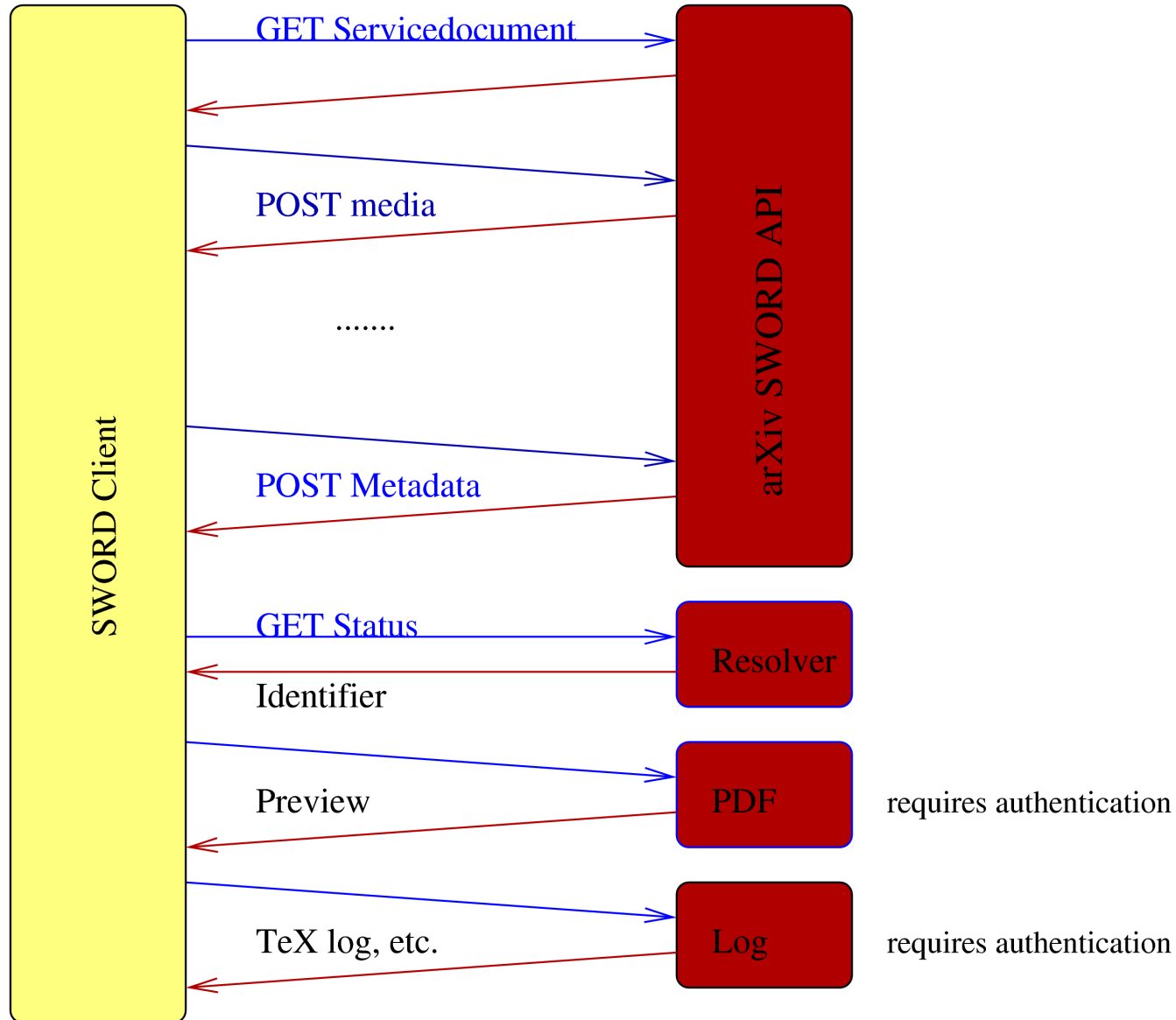
- Steady creation of author ids (6256 opt-ins as of 2011-06-17, 70k claimed author-article pairs)
- Small Facebook user community but we did not find the “killer app”
 - Facebook expensive as API changes rapidly
 - Did we fail to find “the way” or is it just not ripe?
- JavaScript widget displays live data on homepage
- Need better claiming (INSPIRE collab)
- Need data export

SWORD = Automated deposit

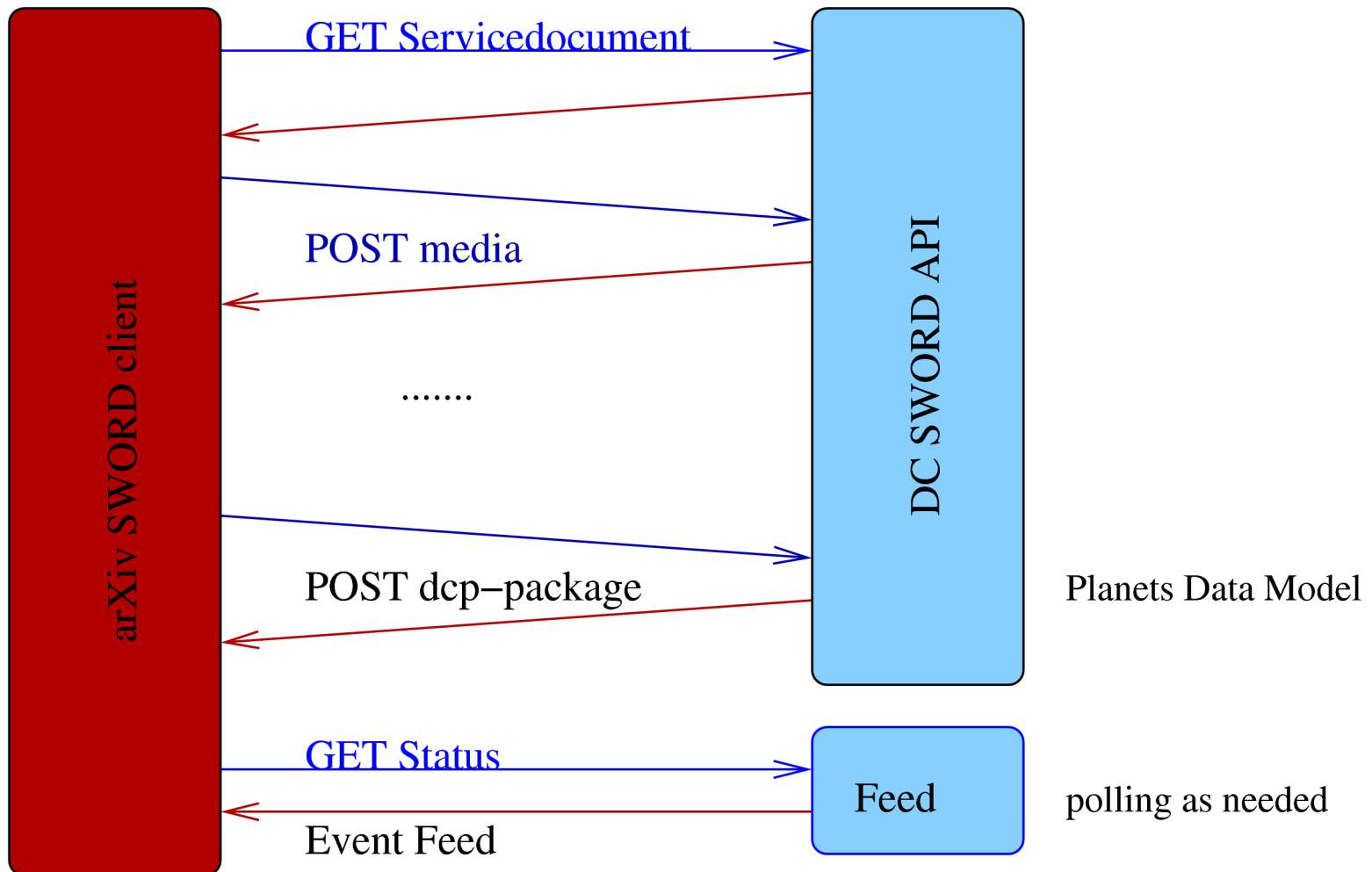
- Implemented early 2010, >5000 submissions
- IN: Proxy site, overlays
- OUT: Data Conservancy
- Replaces ad-hoc method
- IR mediated deposit?
- Push to IR?



SWORD deposit to arXiv

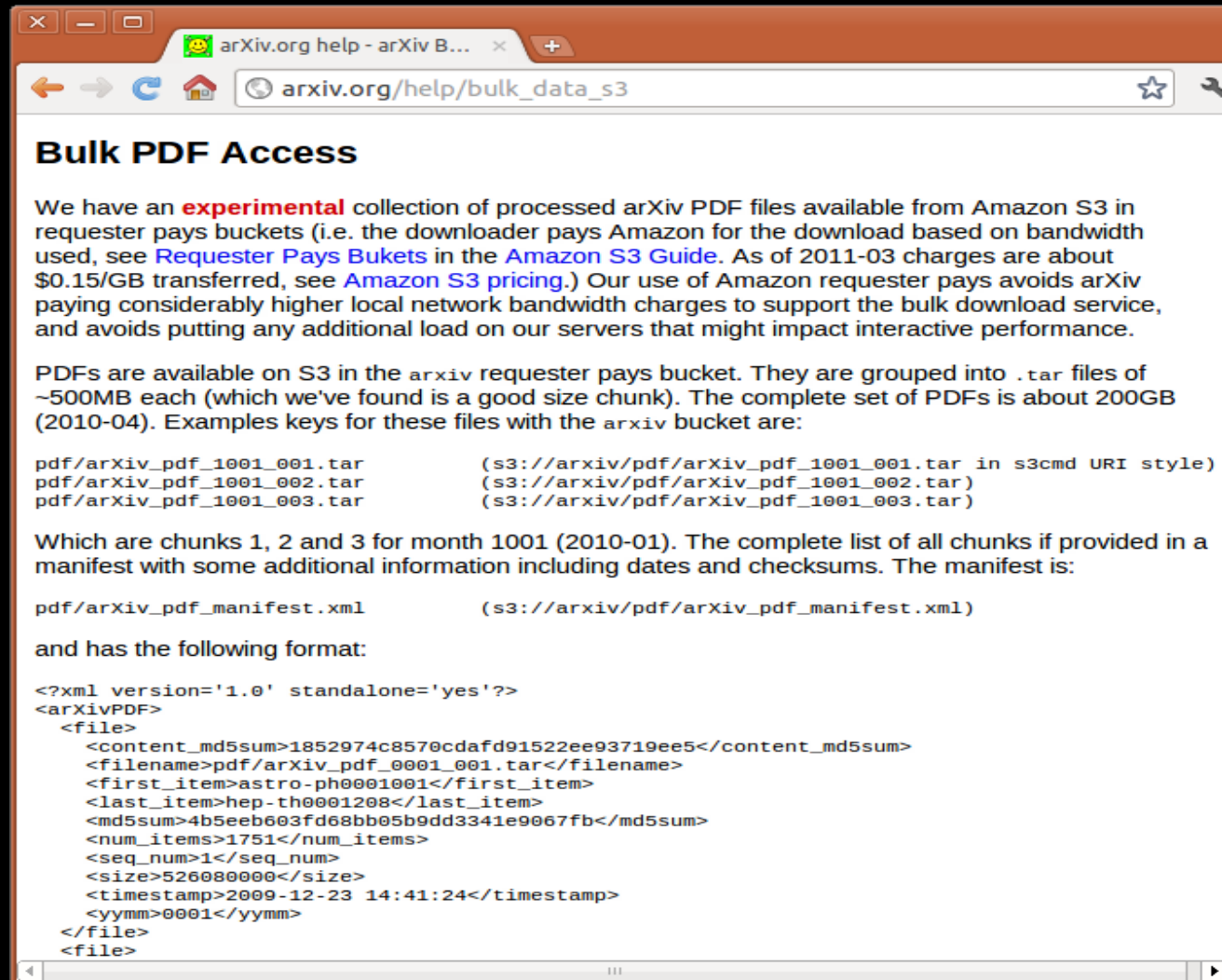


arXiv deposit to Data Conservancy



Access to arXiv data

- Want arXiv data to be used
- Don't want to spend admin time dealing with it
- Don't want cost
- => put on Amazon S3
- PDF, source... txt and metadata soon



The screenshot shows a web browser window with the URL `arxiv.org/help/bulk_data_s3`. The page title is "Bulk PDF Access". The main text explains that arXiv has an experimental collection of processed PDF files available from Amazon S3. It details the "Requester Pays Buckets" model, where the downloader pays Amazon for bandwidth. The text mentions that as of 2011-03, charges are about \$0.15/GB transferred. It also notes that arXiv's use of Amazon requester pays avoids additional server load.

PDFs are available on S3 in the `arxiv requester pays` bucket. They are grouped into `.tar` files of ~500MB each (which we've found is a good size chunk). The complete set of PDFs is about 200GB (2010-04). Examples keys for these files with the `arxiv` bucket are:

```
pdf/arXiv_pdf_1001_001.tar      (s3://arxiv/pdf/arXiv_pdf_1001_001.tar in s3cmd URI style)
pdf/arXiv_pdf_1001_002.tar      (s3://arxiv/pdf/arXiv_pdf_1001_002.tar)
pdf/arXiv_pdf_1001_003.tar      (s3://arxiv/pdf/arXiv_pdf_1001_003.tar)
```

Which are chunks 1, 2 and 3 for month 1001 (2010-01). The complete list of all chunks is provided in a manifest with some additional information including dates and checksums. The manifest is:

```
pdf/arXiv_pdf_manifest.xml      (s3://arxiv/pdf/arXiv_pdf_manifest.xml)
```

and has the following format:

```
<?xml version='1.0' standalone='yes'?>
<arXivPDF>
  <file>
    <content_md5sum>1852974c8570cdafd91522ee93719ee5</content_md5sum>
    <filename>pdf/arXiv_pdf_0001_001.tar</filename>
    <first_item>astro-ph0001001</first_item>
    <last_item>hep-th0001208</last_item>
    <md5sum>4b5eeb603fd68bb05b9dd3341e9067fb</md5sum>
    <num_items>1751</num_items>
    <seq_num>1</seq_num>
    <size>526080000</size>
    <timestamp>2009-12-23 14:41:24</timestamp>
    <yymm>0001</yymm>
  </file>
</arXivPDF>
```

Datasets

- Everyone agrees very important
- Nobody knows what to do in general
- “Try something” approach
 - Ancillary data with submissions
 - Collaboration with Data Conservancy

Resolving Author Name Homonymy to Improve Resolution of Structures in Co-author Networks

Theresa Velden, Asif-ul Haque, Carl Lagoze

(Submitted on 13 Jun 2011)

We investigate how author name homonymy distorts clustered large-scale co-author networks, and present a simple, effective, scalable and generalizable algorithm to ameliorate such distortions. We evaluate the performance of the algorithm to improve the resolution of mesoscopic network structures. To this end, we establish the ground truth for a sample of author names that is statistically representative of different types of nodes in the co-author network, distinguished by their role for the connectivity of the network. We finally observe that this distinction of node roles based on the mesoscopic structure of the network, in combination with a quantification of author name commonality, suggests a new approach to assess network distortion by homonymy and to analyze the reduction of distortion in the network after disambiguation, without requiring ground truth sampling.

Comments: Accepted for JCDL 2011. Groundtruth data set attached and described in README file
Subjects: Digital Libraries (cs.DL); Social and Information Networks (cs.SI); Physics and Society (physics.soc-ph)
Cite as: arXiv:1106.2473v1 [cs.DL]

Download:

- PDF
- Other formats

Ancillary files (details):

- README
- groundtruth-R1.txt
- groundtruth-R2.txt
- groundtruth-R3.txt
- groundtruth-R4.txt
- (13 additional files not shown)

Current browse context:

cs.DL
< prev | next >
new | recent | 1106

Change to browse by:

cs
cs.SI
physics
physics.soc-ph

References & Citations

- NASA ADS

Bookmark (what is this?)



Data associated with this Submission

Start >> Add Files >> Process >> Metadata >> **Add Data** >> Preview

Here you may upload data sets, imagery, simulations, videos, or other material of substantial file size (up to 100MB per file, 1GB total), which is of relevance to your submission while exceeding the size restrictions imposed by arXiv. These files will be relayed to the [Data Conservancy Project \(DC\)](#) for archival storage and access.

There will be mutual links from arXiv to DC to connect the external material with this submission. Visit arXiv's [dataset help](#) for more information.

Data uploaded here will be distributed under the same license as the article. You may change the license on the [\[Start\]](#) screen.

! Material uploaded in this section will be relayed to the Data Conservancy. It will remain associated with your submission, but it will not be stored at arXiv.

This is a pilot project which explores future cooperation between arXiv and DC and the related infrastructure requirements. As such this service may undergo substantial changes and is not guaranteed to persist beyond the duration of the pilot. However reasonable efforts will be made to keep the uploaded material accessible.

Add data

[Continue. Preview](#)

Choose File No file chosen

*Short description

Upload file



A Multicolour Photometric Study of the neglected eclipsing binary FT Ursae Majoris

Jin-Zhao Yuan

(Submitted on 9 Jun 2011)

The multicolour photometric observations of the neglected eclipsing binary FT Ursae Majoris (FT UMa) were obtained in 2010. The 2003 version of Wilson-Devinney code was used to analyze the light curves in B , V , and R bands simultaneously. Based on the spectroscopic mass ratio $q=0.984$ published by Pribulla et al., it is found that FT UMa is an evolved contact binary with a contact degree of 15.3%. The low amplitude of light variations, ~ 0.15 mag, arises mainly from a moderately low inclination angle of $i=62.^{\circ}80$ and almost identical components in size rather than the light dilution of a third component, which contributes light of only $\sim 10\%$

Comments: 5 pages, 2 figures

Subjects: **Solar and Stellar Astrophysics (astro-ph.SR)**Cite as: **arXiv:1106.1694v1 [astro-ph.SR]**

Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Data sets (what is this?)

-  [Data Conservancy](#) (3 files)

Current browse context:

astro-ph.SR

< [prev](#) | [next](#) >[new](#) | [recent](#) | [1106](#)

Change to browse by:

[astro-ph](#)

References & Citations

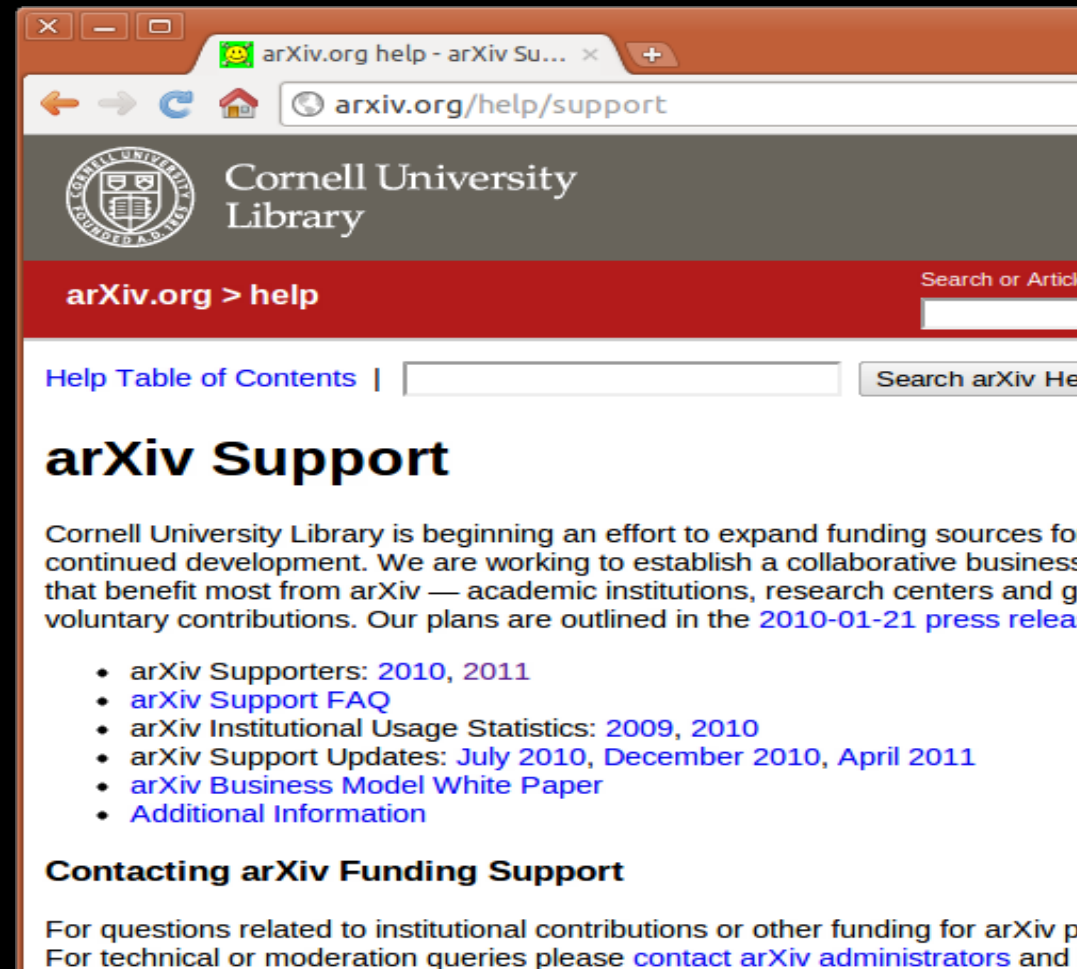
- [SLAC-SPIRES HEP](#)
(refers to | cited by)
- [NASA ADS](#)

Bookmark (what is this?)



Institutional support model

- Short term model for 2010-2012
- Ask top 200 institutions, account for >75% inst downloads
- 2010: \$360,000
 - 123 institutions,
 - 11 countries
- 2011: \$275,000 as of April
- Working on governance
- More focus on institutions
 - Report as benefit?



The screenshot shows a web browser window with the URL arxiv.org/help/support. The page header includes the Cornell University Library logo and the text "Cornell University Library". Below the header, there is a red navigation bar with "arXiv.org > help" and a search box. The main content area features a "Help Table of Contents" link, a search box, and the heading "arXiv Support". The text below the heading states: "Cornell University Library is beginning an effort to expand funding sources for continued development. We are working to establish a collaborative business that benefit most from arXiv — academic institutions, research centers and g... voluntary contributions. Our plans are outlined in the [2010-01-21 press relea...](#)". A list of links follows: "arXiv Supporters: [2010](#), [2011](#)", "[arXiv Support FAQ](#)", "arXiv Institutional Usage Statistics: [2009](#), [2010](#)", "arXiv Support Updates: [July 2010](#), [December 2010](#), [April 2011](#)", "[arXiv Business Model White Paper](#)", and "[Additional Information](#)". At the bottom, there is a section titled "Contacting arXiv Funding Support" with the text: "For questions related to institutional contributions or other funding for arXiv p... For technical or moderation queries please [contact arXiv administrators](#) and

=== Statistics for arXiv use from Cornell ===

Found 811 registered users with Cornell email or claimed affiliation
(0.5% of the 176350 user accounts in arXiv)

Found 2616 articles owned by users with Cornell email or claimed
affiliation (0.4% of the 683460 documents in arXiv)

Found 2944 articles submitted by users with Cornell email
(0.4% of the 683460 documents in arXiv)

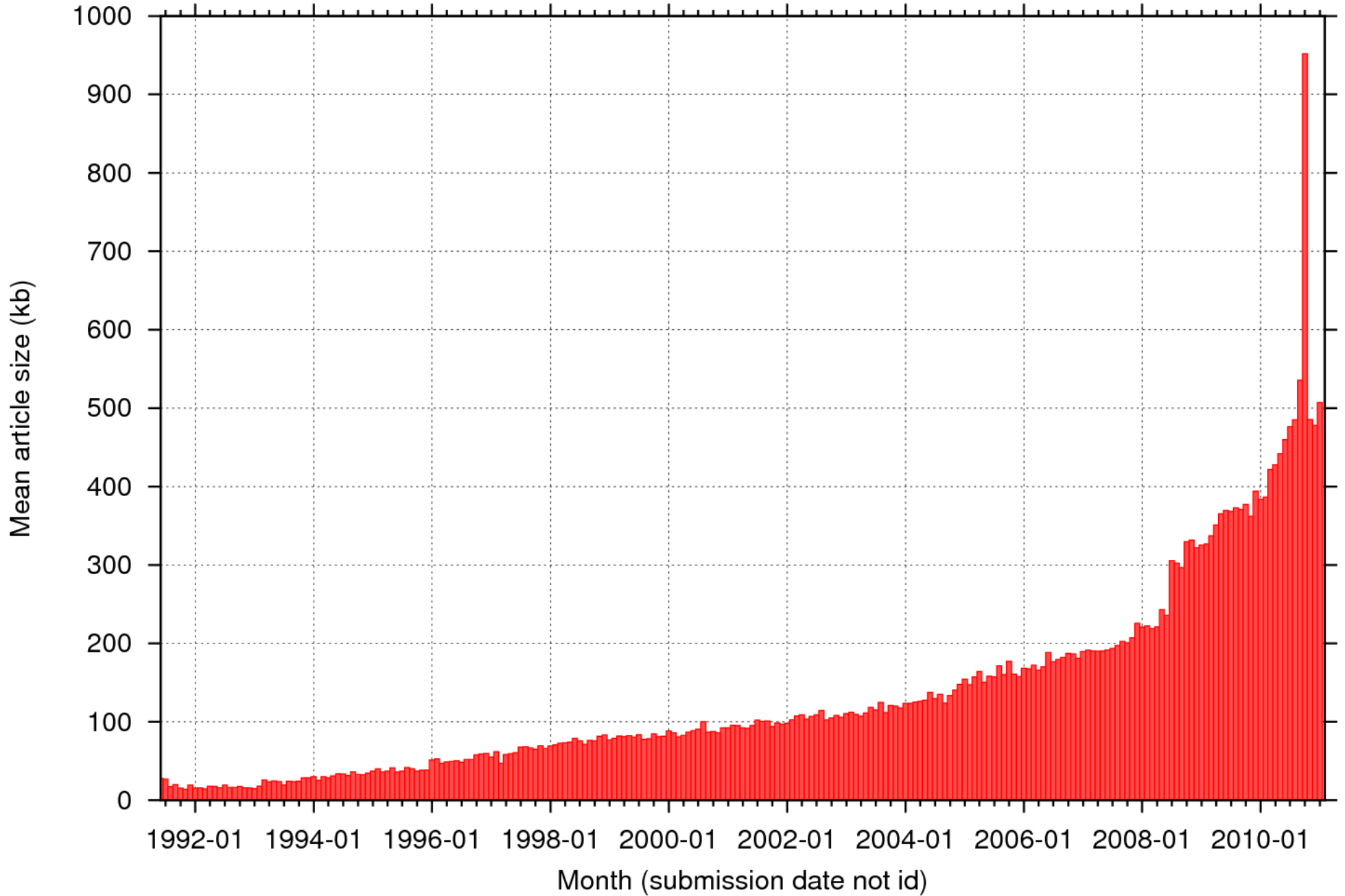
=== Submissions in 2010 ===

Found 273 articles in 2010 owned by users with Cornell email or claimed
affiliation (0.4% of 70125 total articles in 2010)

Breakdown of articles submitted in 2010 by subject areas:

Cond. Matter Physics	58	(21.2%)
Mathematics	55	(20.1%)
Astrophysics	49	(17.9%)
Computer Science	39	(14.3%)
Other Physics	38	(13.9%)
High-Energy Physics	28	(10.3%)
Statistics	4	(1.5%)
Quantitative Finance	1	(0.4%)
Quantitative Biology	1	(0.4%)
TOTAL	273	

Mean article size at arXiv (by submission month)



Mirrors not so useful

Site (2010 data)	Institutional downloads	%TOTAL	Downloads	%TOTAL	%INST
TOTALS	11812746	100.0%	39706223	100.0%	29.8%
cul	10257772	86.9%	33625597	84.7%	30.5%
lanl	585955	5.0%	1824742	4.6%	32.1%
de	220574	1.9%	727938	1.8%	30.3%
jp	219162	1.9%	598719	1.5%	36.6%
uk	218081	1.8%	607037	1.5%	35.9%
fr	135822	1.2%	384750	1.0%	35.3%
es	46149	0.4%	110663	0.3%	41.7%
ru	35525	0.3%	275295	0.7%	12.9%
aps	32451	0.3%	428740	1.1%	7.6%
au	14786	0.1%	87065	0.2%	17.0%
cn	13828	0.1%	360918	0.9%	3.8%
in	12099	0.1%	583503	1.5%	2.1%
br	9215	0.1%	47042	0.1%	19.6%
il	8038	0.1%	21084	0.1%	38.1%
tw	3289	0.0%	23130	0.1%	14.2%

What else?

- Started work to migrate access system to Invenio (the “out of the box” solution?)
- Sharing login facility and authorship data with INSPIRE
- Pilot collaboration with ScienceWISE to link to tagged/annotated versions of papers

Wish list

- Link author ids to other systems (ORCID when available)
- Better claiming
- Affiliation data
- Linked Data view of arXiv, RDF data dump

That's all folks

- Thanks to
 - Supporters:
http://arxiv.org/help/support/2011_supporters
 - Funders: NSF (as part of Data Conservancy),
Microsoft (ended 2010)
 - Team: Thorsten Schwander, Martin Lessmeister,
Peter Halliday, David Ruddy, Oya Rieger,
Jacob Weiskoff, Donald Beyer, Fiona Patrick,
Paul Ginsparg