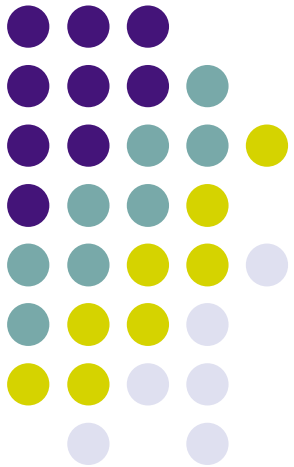
Open Access in Physics & Chemistry or, *A Tale of Two Disciplines*

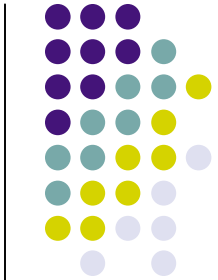
Heather Morrison

The Imaginary Journal of Poetic Economics

http://poeticeconomics.blogspot.com

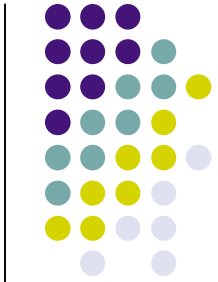


Overview



- Definition of open access
- Physics & open access archives
- Self-archiving comparison
- Chemistry
- Open Access Publishing
- Policy Developments
- Conclusions

Open Access

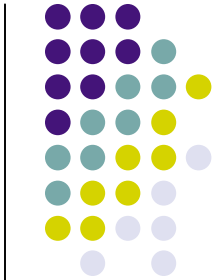


- Open-access (OA) literature is digital, online, free of charge, and free of most copyright and licensing restrictions. From: Peter Suber's *Open Access Overview*, at:

http://www.earlham.edu/~peters/fos/overview.htm

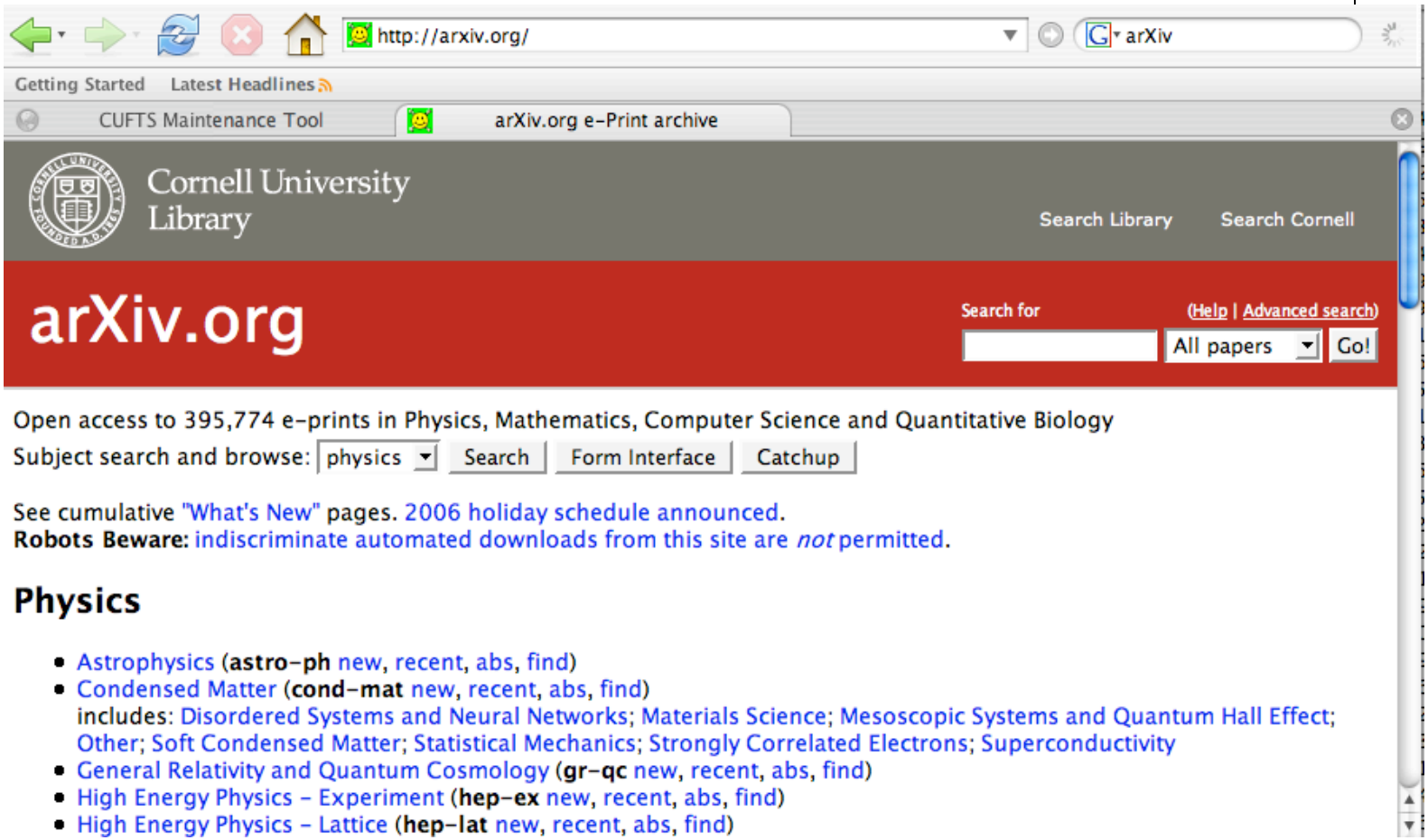
- OA makes sense for the literature authors have traditionally given away, such as the peer-reviewed academic article

The roads to open access

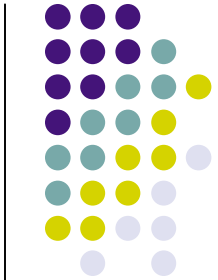


- Two main roads
- Open access archiving (green road)
- Open access publishing (gold road)
- Many variations

Physics
arXiv http://archive.org

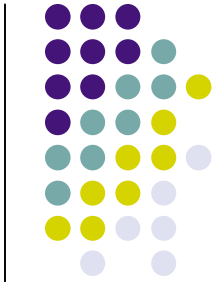


arXiv



- http://arxiv.org/
- E-prints server
- Open access to nearly 400,000 e-prints in Physics, Mathematics, Computer Science and Quantitative Biology (Nov. 2006)
- Physics: mainly preprints
- Close to 100% self-archiving in some sub-areas of physics, such as High Energy Physics

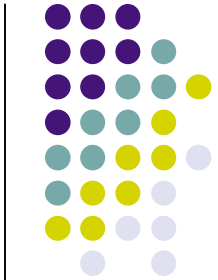
arXiv



- Launched 1991 by Paul Ginsparg
- 18 mirror sites
- Several publishers (American Physical Society, Institute of Physics, Journal of High Energy Physics) allow direct submission of articles from arXiv
- Institute of Physics eprintweb.org

  http://eprintweb.org/S/ mirror of archive, with added value / enhanced functionality

arXiv and subscriptions



- Physics journals have peacefully coexisted with arXiv for 15 years
- No journal cancellations have been attributed to arXiv
- American Physical Society announced price decreased for 2005 for all tiers:

  http://librarians.aps.org/2005pricing.html

arXiv

- Usage: 339,774 connections Nov. 19 (Sunday 10 p.m.) - main site only, mirrors not included
- RSS feeds
- Housed at Cornell University Library
- Funding by National Science Foundation (NSF) U.S.

CERN Document Server (*managed by CERN Library*)

- CERN is the world's largest particle physics laboratory - and where the web was born

Physics and the push for full open access publishing

- December 5, 2005 Task Force on Open Access Publishing in Particle Physics set up
- Conclusion: sponsorship model the most appropriate for the transition to open access
- Cost is estimated to be 5–6 Million € per year, significantly less than the current expenditures on subscriptions
- from Peter Suber's Open Access Newsletter:
  http://www.earlham.edu/~peters/fos/newsletter/09-02-06.htm

Physics open access sponsoring consortium

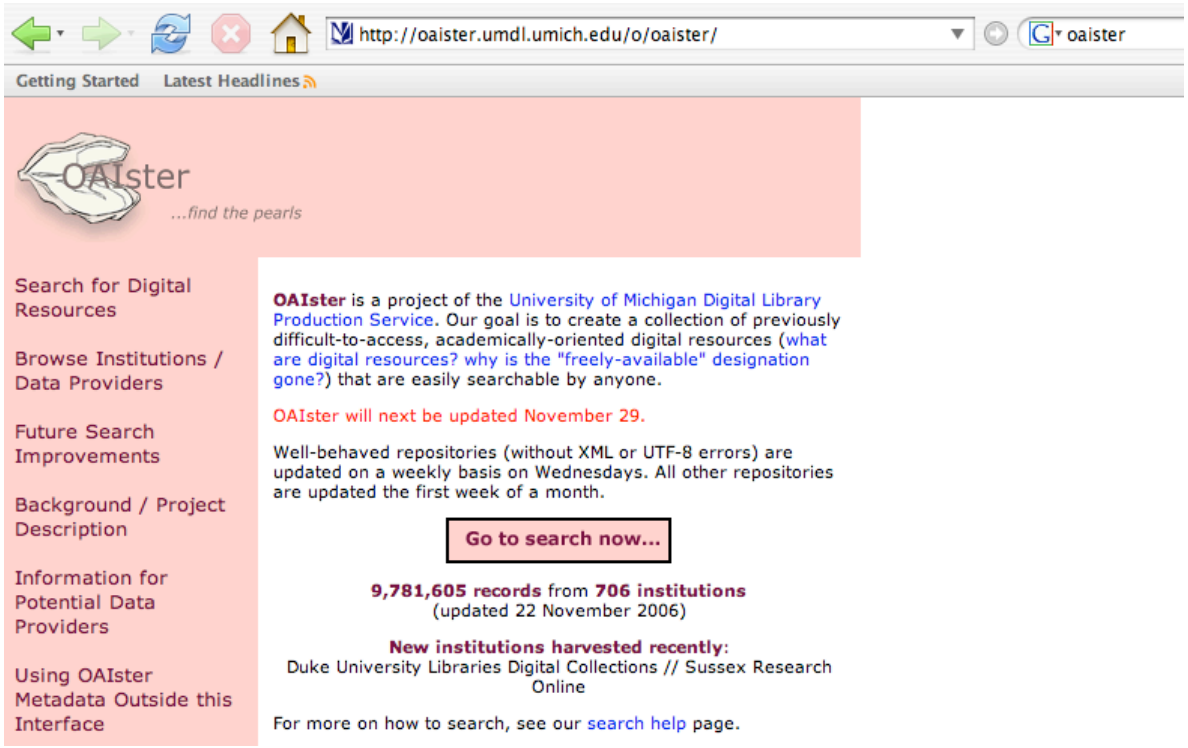
- Meeting at CERN November 3, 2006:
- Establishing a sponsoring consortium for open access publishing in physics
- http://indico.cern.ch/conferenceDisplay.py?confId=7168
- Participants: funding agencies, research agencies, and CERN library staff

Physics open access consortium

- As of Nov. 26, 14 letters of support for the transition plan received so far, e.g. from:
- Physics lab in France
- Germany - federal Ministry for Education & Research
- Netherlands - SURF (network & ICT services for higher education & research)
- Italy - University of Bologna
- UNESCO
- European Physical Journal

Comparing self-archiving in physics & chemistry using OAIster

http://oaister.umdl.umich.edu/o/oaister/



OAIster and Google Scholar Comparisons of Physics and Chemistry

	Physics	Chemistry
OAIster subject / text search	309,804	21,376
Google Scholar keyword search in subject area	1,820,000	845,000
Google Scholar Subject Search for "McGill"	17,600	13,100

Caution!!! These numbers are a very rough indication of trends at best. For example, OAIster records do not always point to fulltext. The accuracy of an OAIster subject search is unknown (a physics subject search does not retrieve CERN records). Similarly, Google scholar searches in this areas have not been precisely defined. Materials other than peer-reviewed articles are included, and not all peer-reviewed articles will be included.

Nov. 26, 2006 Heather Morrison

Self-archiving in physics and chemistry comparison

- Physics: very high rates of self-archiving, approaching 100% in some sub-disciplines such as high energy physics
- Chemistry: very low rates of self-archiving of peer-reviewed articles

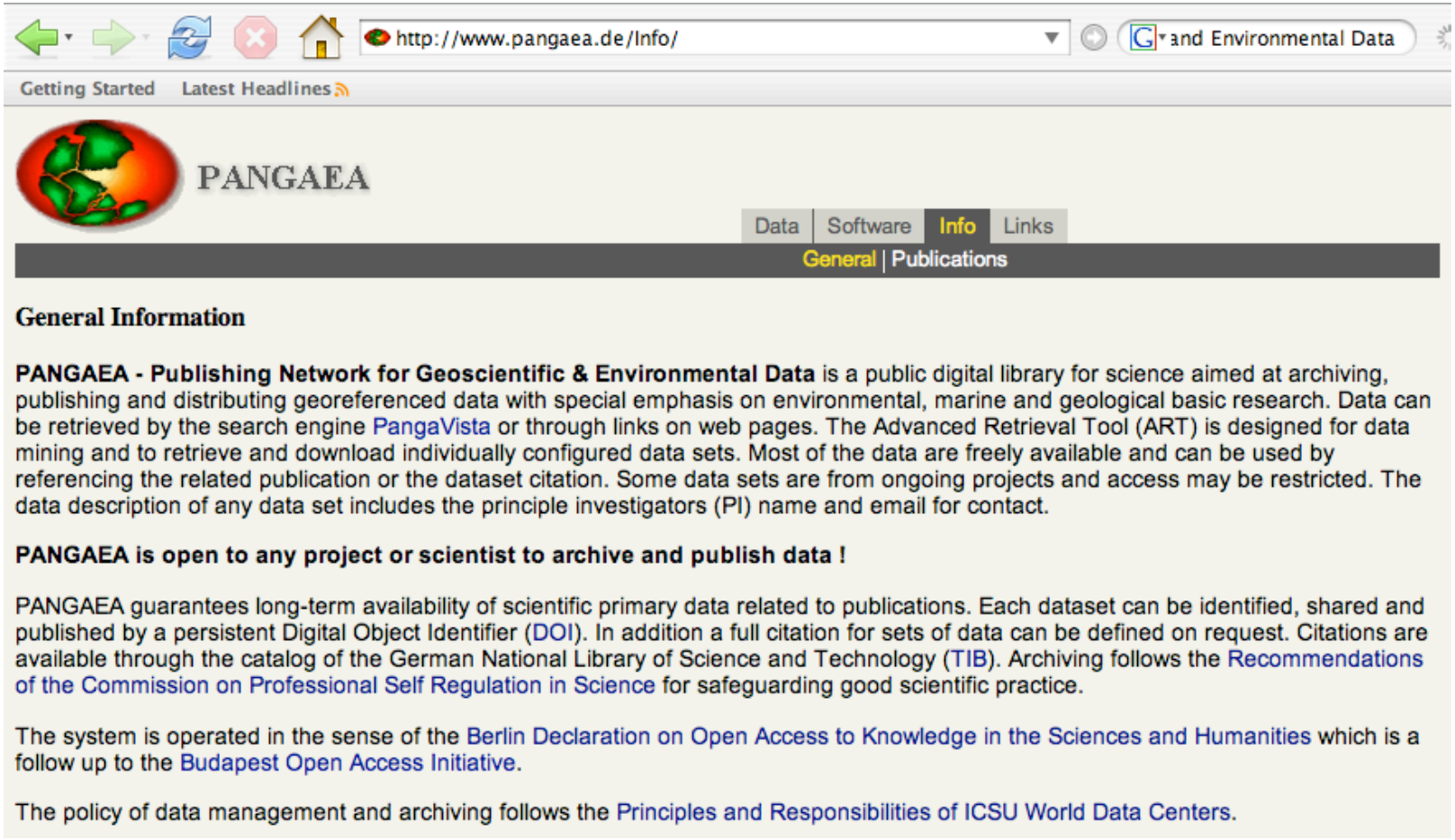
- however…

A different OAIster search…

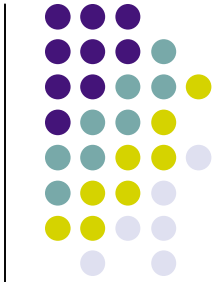
OAIster Subject / Text versus Keyword / any Record Type Search: Physics and Chemistry		
	Physics	**Chemistry**
OAIster subject / text search	309,804	21,376
OAIster keyword search / any type of record	676,843	231,569

The difference? The 171,741 records in PANGAEA which are included in the Chemistry search results.

Pangaea: open access public digital library for science *data*



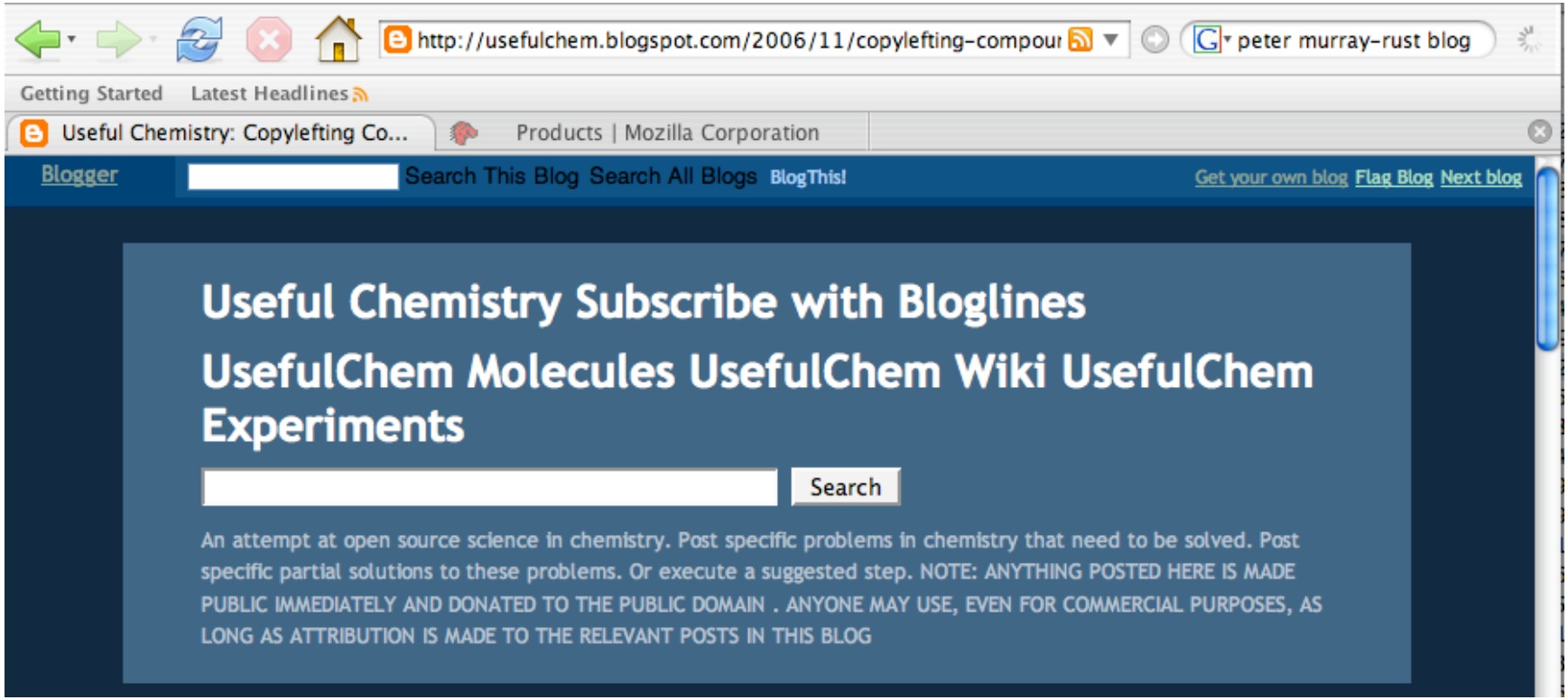
Chemistry and openness



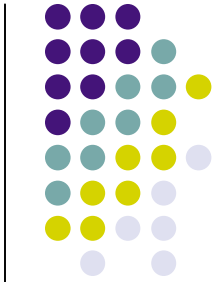
- Open Data: Dr. Peter Murray-Rust
- Peterm's blog: A Scientist and the Web
- http://wwmm.ch.cam.ac.uk/blogs/murrayrust/
- SPARC Open Data listserv
- Open Data in Science - technical and cultural aspects - CERN Workshop on Scholarly Innovations 2005, download video from:

  http://wwmm.ch.cam.ac.uk/blogs/murrayrust/

Useful Chemistry: blogging experiments (Jean-Claude Bradley)



Useful Chemistry post on Copylefting Compounds



SATURDAY, NOVEMBER 04, 2006

Copylefting Compounds

An interesting discussion about Open Source and Open Data in chemistry has popped up in the comments on a post on Egon's chem-bla-ics blog. It is important that we make our assumptions explicit when using these terms. Peter has taken the step of creating a Wikipedia entry for Open Data, providing a place for defining the terms we use. For example, I have added a detailed explanation of what I mean when using the term Open Notebook Science. When using the terms Open Source Science or Open Science in the past, I was pretty much using the definition I now use explicitly for ONS. It was confusing when people would use these terms but not provide any links to raw data.

In one of the comments, Peter notes:

> In chemistry OD and OS (Bradley-like) overlap and are perhaps even synonymous. So in a sense Open Chemistry could be called simply OD. The added dimension in chemistry is the physical sample.

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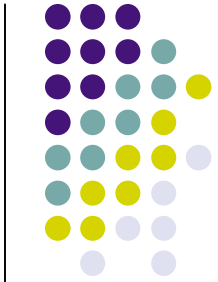


Open Chemistry Position Statement

Chemists Without Borders

Open Chemistry Position Statement

Synopsis

Within the vision of Chemists Without Borders, Open Access to the traditional scholarly, peer-reviewed journal literature is the library, a global library with equal access to our shared knowledge for all. Open Access is necessary to development of equitable access to chemistry education and research opportunities in both the developed and developing world. Chemists Without Borders strongly supports Open Access, as defined in the Budapest, Berlin, and Bethesda statements, and the measures necessary to implement open access, such as funding agencies requiring open access to the results of the research they fund, and educating researchers about Open Access.

Open Access Publishing in Physics and Chemistry

- Directory of Open Access Journals
- http://www.doaj.org
- Fully open access, peer-reviewed journals
- 38 physics (general) journals + 10 astronomy
- 52 chemistry journals (general and specialised)

Open Access Journals: sponsorship model

- Beilstein Journal of Organic Chemistry:

  published and sponsored by the Beilstein-Institut
- More than half of open access journals do not charge author fees (Kaufman-Wills study

  http://www.alpsp.org/openacc.htm)

Open Access Journals: some approaches

- Chemistry Central Journal, BioMedCentral
- Article processing fee of $1,425 US per article
- Or: library membership fee (to reduce or waive fees, at the library's discretion)
- Or, direct funding agency sponsorship e.g. NHS funded researchers receive an automatic waiver

Open access and traditional publishers in chemistry

- American Chemical Society: battles against open access, especially PubChem
- American Chemical Society: ACS Author Choice: article processing fee, depends on membership & subscription($1,000 U.S. - $3,000 U.S.)
- Royal Chemical Society: author choice option starts in 2007
- For self-archiving policies, see the Sherpa Romeo list at: http://www.sherpa.ac.uk/romeo.php

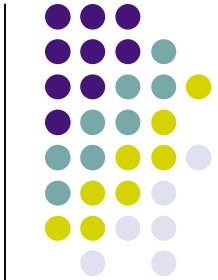
Open Access Policy Developments

- If the traditional chemistry publishers are against open access, why are they offering Open Choice?
- Answer (in my opinion): funding agencies and others are beginning to require open access

Open Access Policy Developments - examples

- U.S. National Institute of Health (weak policy)
- Wellcome Trust
- 5 of the Research Councils U.K.
- In the works:
- Federal Research Public Access Act (2006)
- Canadian Institutes of Health Research Draft Policy on Access to Research Outputs
- And more, throughout the world…

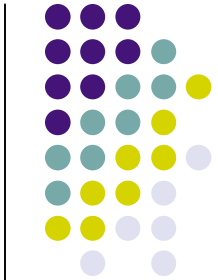
Conclusions



Physics:

- Leader in open access archiving
- Builds on tradition of sharing preprints
- Moving towards full open access publishing
- Open access is mainstream

Conclusions



Chemistry

- Low rate of self-archiving to date
- Self-archiving will increase with mandates
- Early signs of leadership in open data and open source science
- Open access / open science is cutting-edge, not mainstream (so far)

Questions? Discussion?

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