

Public Access Overview/ Summary of Publishers' CHORUS Project

Tri-Institutional Collaboration Network Symposium
on Public Access to Scholarly Research

H. Frederick Dylla

Executive Director and CEO
American Institute of Physics

Outline

- Evolution of the Scholarly Publishing Enterprise
- Context: Brief review of the chronology of public access policy in the US
- The White House Office of Science and Technology Policy (OSTP) Directive (February 22, 2013)
- The response to the Directive:
 - National Institutes of Health (NIH): PubMed Central
 - Universities: SHARE Project
 - Publishers: CHORUS Project
 - What happens next in the US?

The Scholarly Publishing Enterprise

The last 300+ years:

- Science as a profession
- The journal has endured as the primary communication for science.
- Exponential growth in research funding has driven parallel growth in journals.

The last 20 years:

- Internet technology has changed dissemination methods and enriched the complexity of content.
- The open culture has driven access models.
- Scientific journals were early adaptors of the web.

The Scientific Journal Endures

PHILOSOPHICAL
TRANSACTIONS:
GIVING SOME
ACCOMPT
OF THE PRESENT
Undertakings, Studies, and Labours
OF THE
INGENIOUS
IN MANY
CONSIDERABLE PARTS
OF THE
WORLD

Vol. I.
For Anno 1665, and 1666.

In the SAVOY,
Printed by T. N. for John Martyn at the Bell, a little with-
out Temple-Bar, and James Allestry in Duck-Lane,
Printers to the Royal Society.

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PAA

What's Changed in the Journal Business?

Past (1665)

Peer review

Print format

Distribution

Volumes / issues / articles

Linear text

References

Archive (library)

Business model
(entrepreneur)

Present (2014)

Peer review

Online format

Discovery

Volumes / issues /
articles

Linear text plus

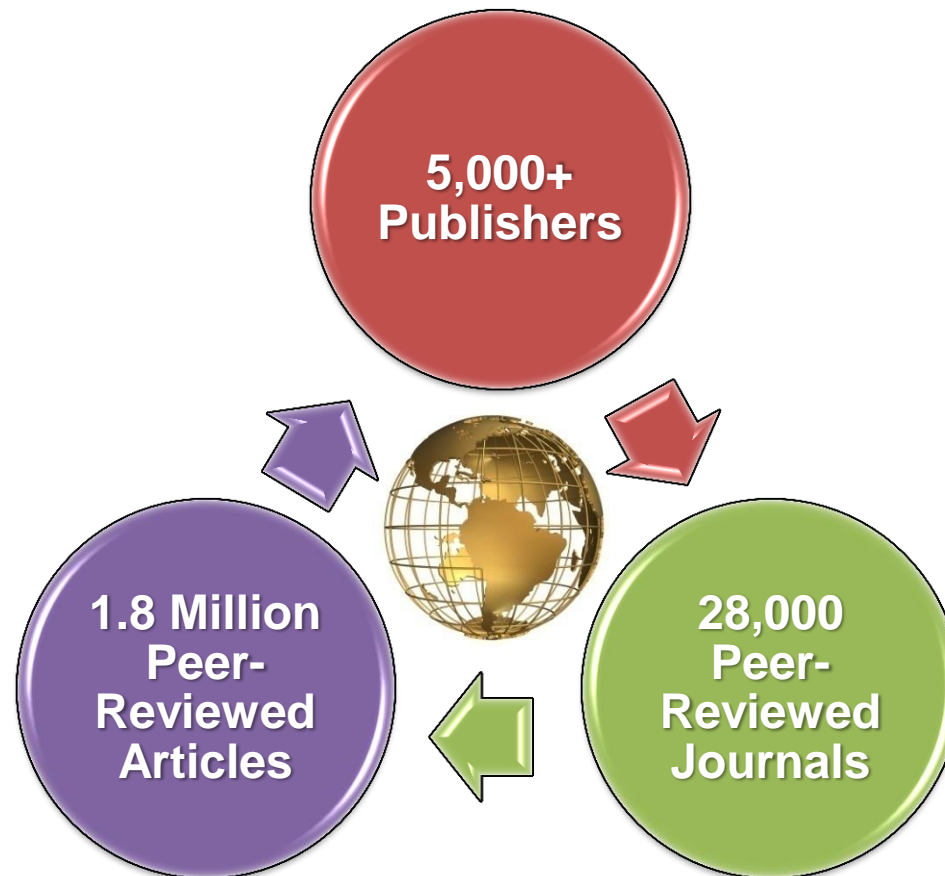
Reference links (DOI)

Archive (shared)

Business models (many)

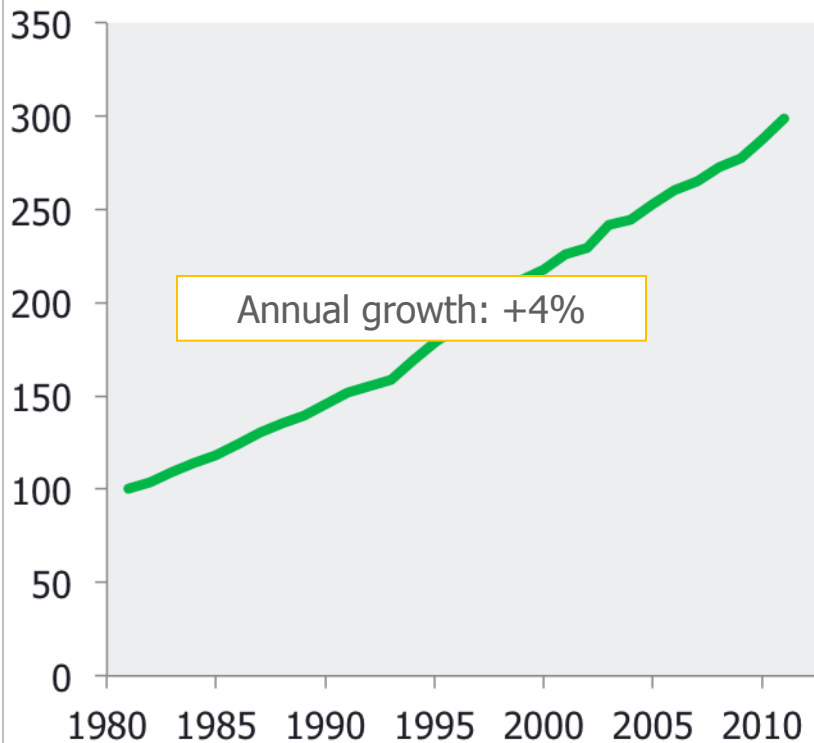
Scholarly Publishing Today

Scientific, Technical and Medical communities around the world are united through publishing



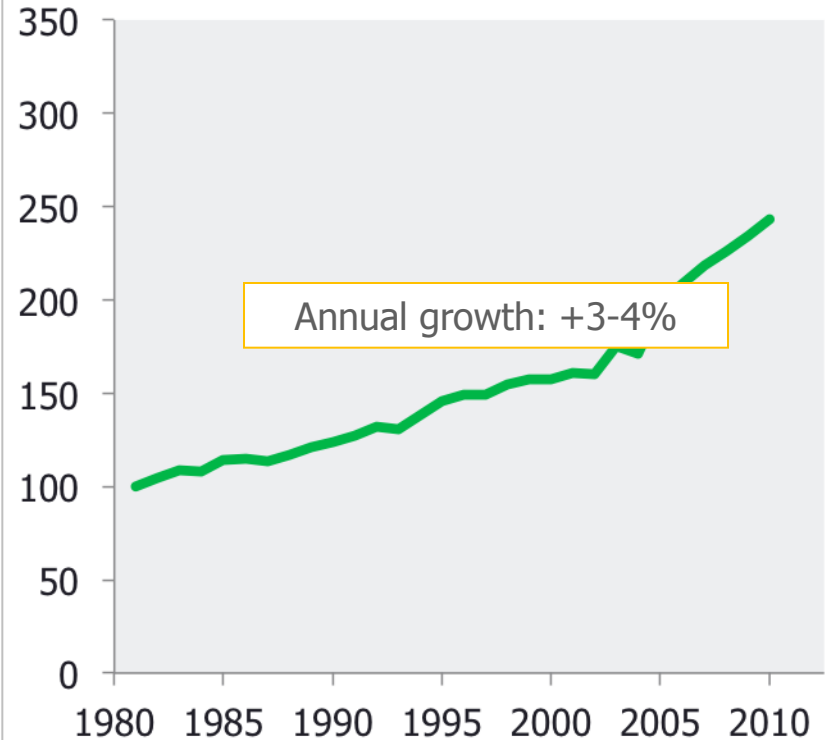
Growth in R&D Spending Drives Number of Researchers and Research Activity

Number of researchers – OECD countries
Indexed values; 100 = Number of researchers in 1981



Global number of researchers:
7 million in 2010

Number of research articles published
Indexed values; 100 = Number of articles in 1981



Number of research articles:
>1.5 million in 2010

What is Open Access Publishing?

- Free availability on the public internet
- Permitting users to read, download, copy, distribute, print, search, or link to the full texts of these articles
- Crawl them for indexing
- Licenses to allow use and re-use without financial, legal, or technical barriers
- Accessible online without cost to readers, but not costless to produce. So, funding needed by authors, institutions, funders or others.

Budapest Open Access Initiative

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Read the Budapest Open Access Initiative

An old tradition and a new technology have converged to make possible an unprecedented public good. The old tradition is the willingness of scientists and scholars to publish the fruits of their research in scholarly journals without payment, for the sake of inquiry and knowledge. The new technology is the internet. The public good they make possible is the world-wide electronic distribution of the peer-reviewed journal literature and completely free and unrestricted access to it by all scientists, scholars, teachers, students, and other curious minds. Removing access barriers to this literature will accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich, make this literature as useful as it can be, and lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge.

For various reasons, this kind of free and unrestricted online availability, which we will call **open access**, has so far been limited to small portions of the journal literature. But even in these limited collections, many different initiatives have shown that open access is economically feasible, that it gives readers extraordinary power to find and make use of relevant literature, and that it gives authors and their works *vast and measurable* new *visibility, readership, and impact*. To secure these benefits for all, we call on all interested institutions and individuals to help open up access to the rest of this literature and remove the barriers, especially the price barriers, that stand in the way. The more who join the effort to advance this cause, the sooner we will all enjoy the benefits of open access.

The literature that should be freely accessible online is that which scholars give to the world without expectation of payment. Primarily, this category encompasses their peer-reviewed journal articles, but it also includes any unreviewed preprints that they might wish to put online for comment or to alert colleagues to important research findings. There are many degrees and kinds of wider and easier access to this literature. By "open access" to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles; crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited.

While the peer-reviewed journal literature should be accessible online without cost to readers, it is not costless to produce. However, experiments show that the *overall costs* of providing open access to this literature are far lower than the costs of traditional forms of dissemination. With such an opportunity to save money and expand the scope of dissemination at the same time, there is today a strong incentive for professional associations, universities, libraries, foundations, and others to embrace open access as a means of advancing their missions. Achieving open access will require new cost recovery models and financing mechanisms, but the significantly lower overall cost of dissemination is a reason to be confident that the goal is attainable and not merely preferable or utopian.

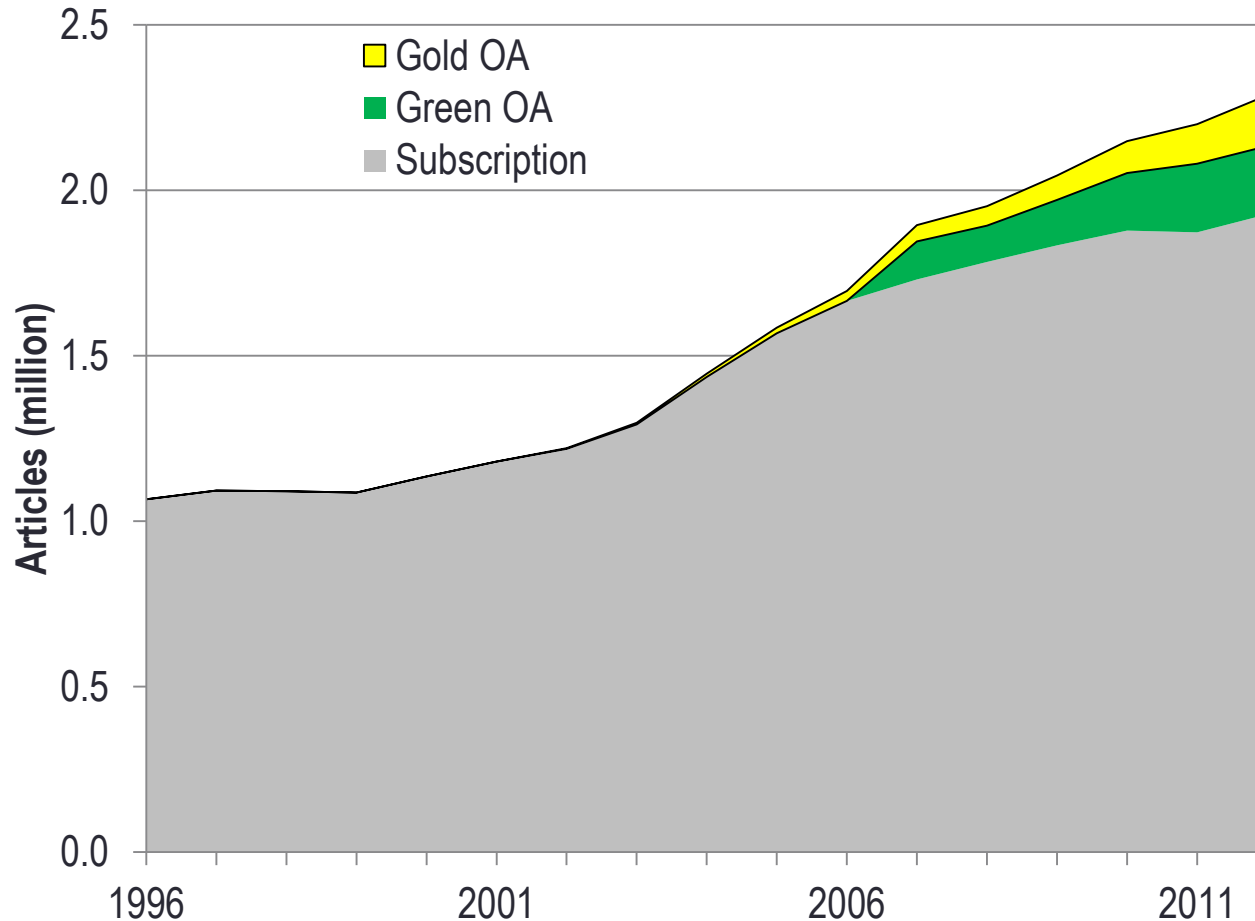
To achieve open access to scholarly journal literature, we recommend two complementary strategies.

1. Self-Archiving: First, scholars need the *tools and assistance* to deposit their refereed journal

Open Access Drivers



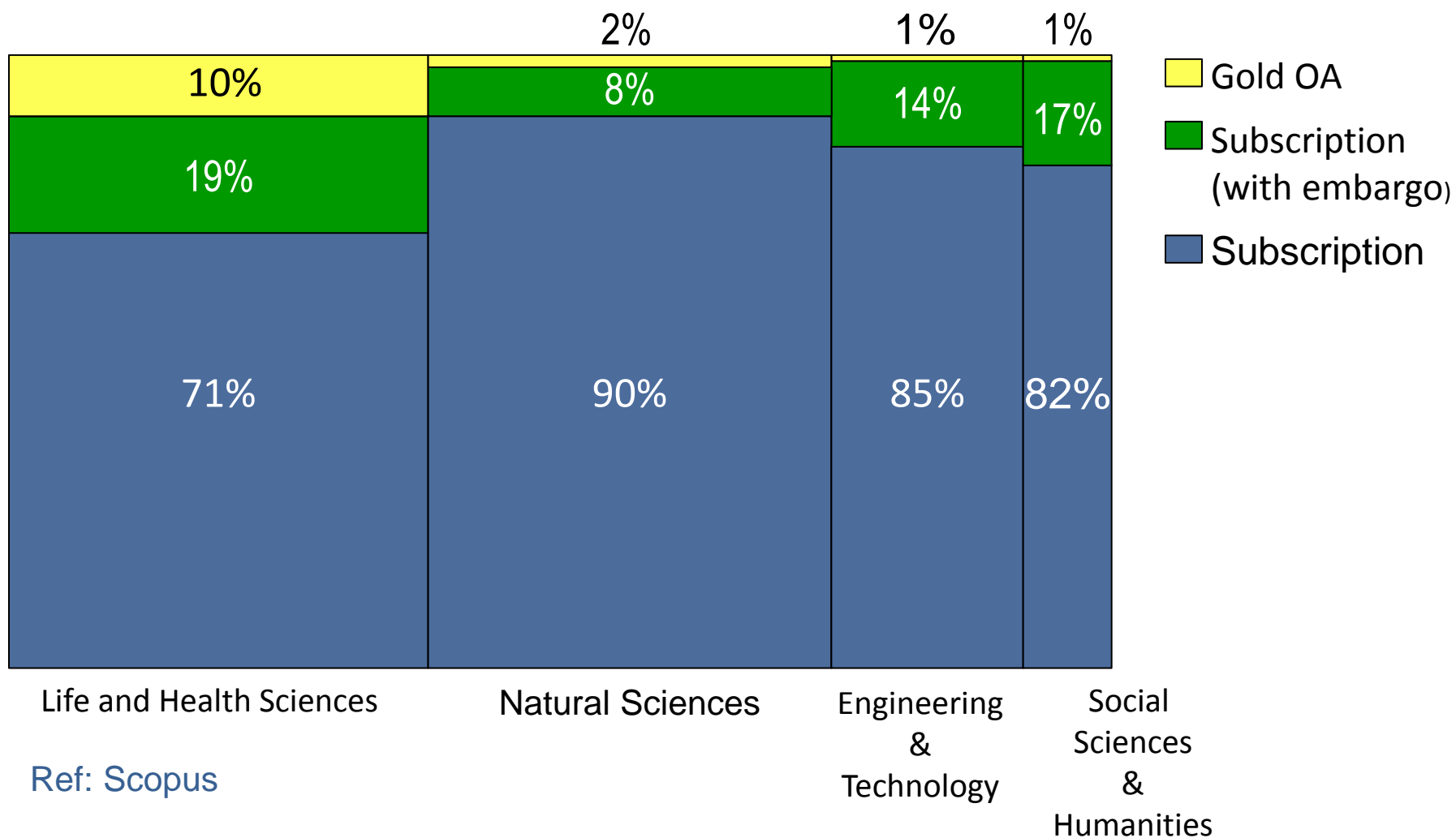
Growth of Open Access 1996 - 2012



- Gold (“Author Pays”) articles made up 7% of total in 2012
- Green (open access after an embargo)
- The level of uptake varies by field – highest in Life and Health Sciences

Ref: Scopus

Open Access Update By Discipline



Recent Timeline on Public Access

2013
2012

2009

US House sponsored *Scholarly Publishing Roundtable*

2010-11

America COMPETES Act of 2010 passed/signed into law

**includes many Roundtable recommendations*

March

OSTP report: “Interagency Public Access Coordination”

May

FundRef pilot program announced by CrossRef

June

Finch report published in the U.K.

Feb

OSTP issues directive to federal agencies to develop public access plans within six months

Spring

NIH proposes **PubMed Central** as a multi-agency solution; Publishers propose **CHORUS**; Universities propose **SHARE**

May

FundRef program formally launched

Aug

Agencies were due to submit draft plans to OSTP by Aug 22

Sep/Oct

CHORUS pilot launched/CHOR, Inc. forms

2013 OSTP Public Access Memo

“Increasing Access to the Results of Federally-Funded Scientific Research”

Agencies that fund \$100M in research must submit plans for public access. Parameters:

- provide for **free public access to a full-text version** of publications and associated **data** resulting from publicly funded research (after an embargo, 12-month guideline, adapted to agency/discipline needs)
- contain a strategy for leveraging existing resources, fostering **public - private partnerships**; consult stakeholders
- Optimize search and dissemination features to encourage innovation; provide for archiving/long-term stewardship
- identify resources **within existing agency budgets** for implementation

Publishers Offer:



Clearinghouse for the **Open Research** of the United States

The CHORUS Collaboration

A partnership with the federal agencies to deliver:

The CHORUS Project

A multi-agency, multi-publisher, portal and information bridge that identifies, provides access, enhances search capabilities and long-term preservation to journal articles resulting from agency funding

- **100+ Supporting Publishers** (as of 3/14)
- **CrossRef** is an important service provider
- The **Professional/Scholarly Publishing Division of the Association of American Publishers (PSP-AAP)** provided start-up funding



Clearinghouse for the **Open Research** of the United States

- Evolved from an ad-hoc group of publishers who initiated partnership discussions with several agencies in Spring 2011
- Incorporated as a not-for-profit entity – **CHOR Inc.** – on October 1, 2013.
- Applying for US IRS 501(c)(3) tax-exempt status
- Received significant sponsorship pledges at the Frankfurt Book Fair (industry event) in October, 2013.



CHORUS Goals

- **Provide public access** to manuscripts/articles reporting on federally funded research
 - Goal furthered by CHORUS' open-technology platform.
- **Leverage existing infrastructure** and investment of the agencies and publishers
 - CHORUS is built upon protocols/partnerships, i.e., CrossRef, FundRef, Prospect, CLOCKSS, Portico, ORCID.)
- **Ensure compliance and archival presentation**
- **Preserve agency funds** for mission critical activities/programs
 - There is no significant cost for agency use or participation.
- Provide for **international scalability**



How does CHORUS Help Key Stakeholders?

Funding agencies

Identifies and **provides access** to articles reporting on research they fund, **ensures preservation** of research articles, **ensures** researcher and publisher compliance

Authors/researchers/institutions

Simplifies compliance with funder mandates, **provides access** to research results

Libraries

Ensures preservation of research articles, **provides access** to research results

The public

Provides access to articles reporting on publicly funded research

Publishers

Simplifies compliance with funder mandates, retains traffic





As a service provider, **CrossRef** offers the primary project deliverable: **access to a freely available version of a scholarly publication resulting from federal funding.**

CrossRef's and the member publishers' **existing infrastructure provides ~80% of what is required** for this deliverable.



A tested partnership model, **FundRef** identifies articles resulting from agency funding.

Launched in May 2013 by CrossRef after completion of a pilot involving DOE, NSF, NASA, Wellcome Trust and seven partner publishers.

How CHORUS Works: Identification

...built into the author's submission process



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How CHORUS Works: Access

Funding Agency Embargo Period Expires
or Author/Funder Pays for Public Access

Accepted Author Manuscript
becomes publicly accessible

Version of Record
becomes publicly accessible

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moving physics forward

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APS Journals • Phys. Rev. Lett. • Volume 107 • Issue 10

Phys. Rev. Lett. 107, 101601 (2011) [4 pages]

Anisotropic $N=4$ Super-Yang-Mills Plasma and Its Instabilities

Abstract References Citing Articles (19)

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²Departament de Física Fonamental & Institut de Ciències del Cosmos (ICC), Universitat de Barcelona, Martí i Franquès 1, E-08028 Barcelona, Spain
³Department of Physics, University of California, Santa Barbara, California 93106, USA
⁴Department of Physics, University of Wisconsin, Madison, Wisconsin 53706, USA

Received 6 June 2011; published 30 August 2011

Article Available via CHORUS Pilot
Download Accepted Manuscript

We present a type-IIB supergravity solution dual to a spatially anisotropic finite-temperature $N=4$ super-Yang-Mills plasma. The solution is static and completely regular. The full geometry can be viewed as a renormalization group flow from an ultraviolet anti-de Sitter geometry to an infrared

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Summary

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10.1016/j.str.2010.02.007

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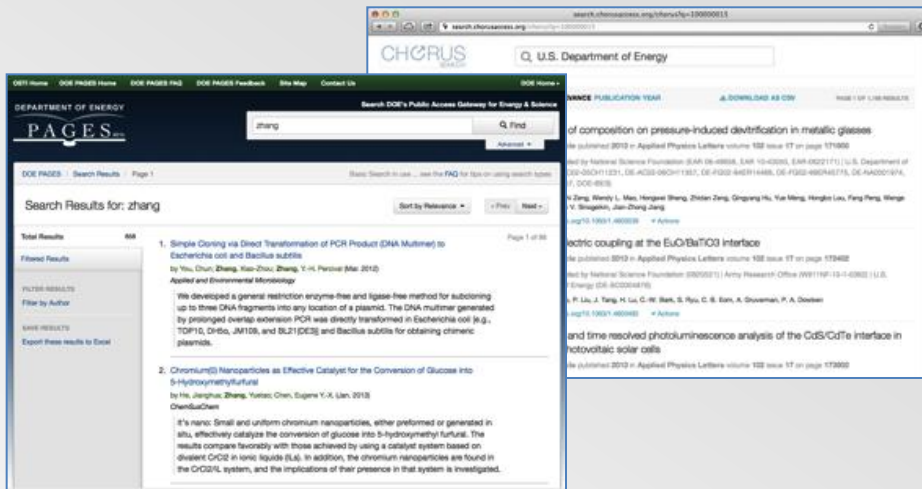
Bioinformatics
Professor

How CHORUS Works: Discovery

...by any existing search engine



API

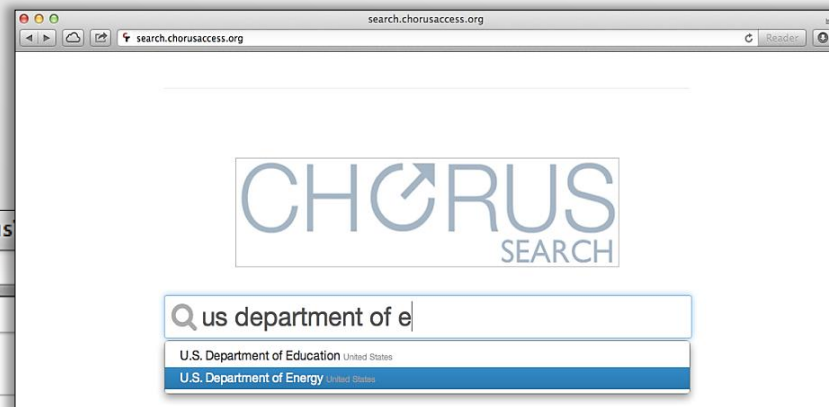


Text and Data-Mining
Services



How CHORUS Works: Discovery

The live pilot:
example of DOE content from
search.chorusaccess.org



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Technology Innovation and Development, Office of Environmental Management

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Nuclear Facility Operations, Office of Nuclear Energy

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Advanced Scientific Computing Research, Office of Science

Biomass Program, Office of Energy

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PAGE 1 OF 1,156 RESULTS

The effect of composition on pressure-induced devitrification in metallic glasses

Journal Article published **2013** in **Applied Physics Letters** volume **102** issue **17** on page **171905**

Research funded by National Science Foundation (EAR 06-49658, EAR 10-43050, EAR-0622171) | U.S. Department of Energy (DE-AC02-05CH11231, DE-AC02-06CH11357, DE-FG02-94ER14466, DE-FG02-99ER45775, DE-NA0001974, DE-SC0001057, DOE-BES)

Authors: Qiaoshi Zeng, Wendy L. Mao, Hongwei Sheng, Zhidan Zeng, Qingyang Hu, Yue Meng, Hongbo Lou, Fang Peng, Wenge Yang, Stanislav V. Sinogeikin, Jian-Zhong Jiang

<http://dx.doi.org/10.1063/1.4803539> [Actions](#)

Magnetoelectric coupling at the EuO/BaTiO3 interface

Journal Article published **2013** in **Applied Physics Letters** volume **102** issue **17** on page **172402**

Research funded by National Science Foundation (0820521) | Army Research Office (W911NF-10-1-0362) | U.S. Department of Energy (DE-SC0004876)

Authors: S. Cao, P. Liu, J. Tang, H. Lu, C.-W. Bark, S. Ryu, C. B. Eom, A. Gruverman, P. A. Dowben

API Integration with Agency Portals

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1. Simple Cloning via Direct Transformation of PCR Product (DNA Multimer) to Escherichia coli and Bacillus subtilis

by You, Chun; **Zhang**, Xiao-Zhou; **Zhang**, Y.-H. Percival (Mar. 2012)

Applied and Environmental Microbiology

We developed a general restriction enzyme-free and ligase-free method for subcloning up to three DNA fragments into any location of a plasmid. The DNA multimer generated by prolonged overlap extension PCR was directly transformed in Escherichia coli [e.g., TOP10, DH5α, JM109, and BL21(DE3)] and Bacillus subtilis for obtaining chimeric plasmids.

2. Chromium(0) Nanoparticles as Effective Catalyst for the Conversion of Glucose into 5-Hydroxymethylfurfural

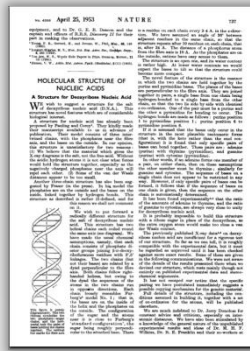
by He, Jianghua; **Zhang**, Yuetao; Chen, Eugene Y.-X. (Jan. 2013)

ChemSusChem

It's nano: Small and uniform chromium nanoparticles, either preformed or generated in situ, effectively catalyze the conversion of glucose into 5-hydroxymethyl furfural. The results compare favorably with those achieved by using a catalyst system based on

How CHORUS Works: Preservation

...use of existing, multiparty preservation strategy

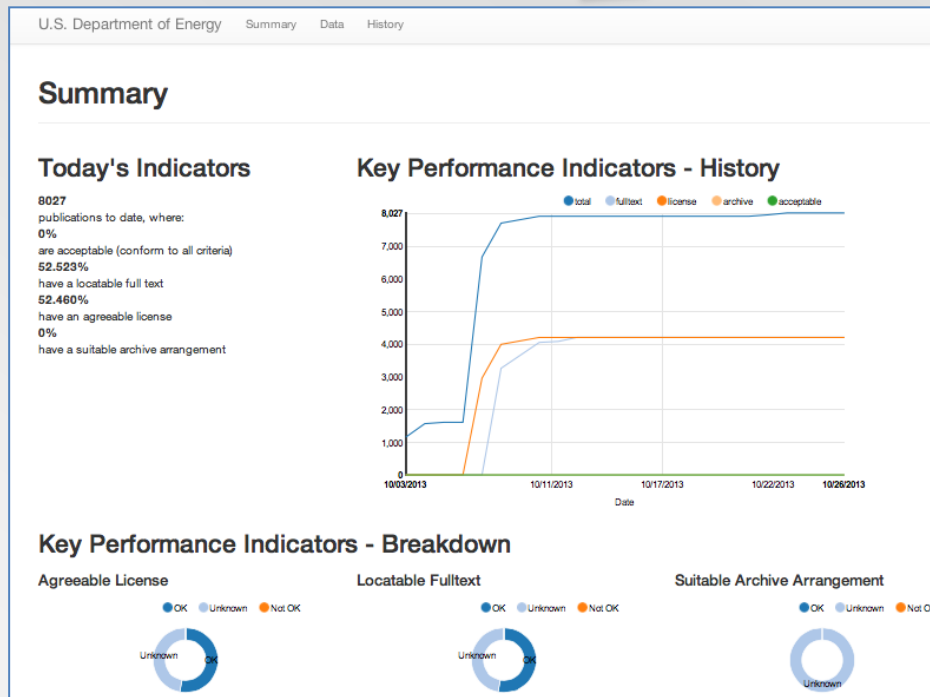


Government
maintained
or other
3rd-party dark
archive



How CHORUS Works: Compliance

API and dashboards for monitoring and tracking publisher contributions to CHORUS



Government Agency Reports

Institution Reports

Publisher Reports

Live dashboard: dashboard.chorusaccess.org/usdoe



CHORUS

Clearinghouse for the **Open Research** of the United States



Incorporation
of CHOR Inc.
1 Oct 2013



US Office of Science and Technology Policy (OSTP) + CHORUS

OSTP Requirement

- Free public access to peer-reviewed research articles
(guideline: 12 month embargo adapted to agency/discipline needs)
- Optimize search, archival, and dissemination features to encourage innovation
- Ensure interoperability and long-term stewardship
- Policies on public data also called for
- Develop plans in consultation with stakeholders



CHORUS Services

Publishers provide free public access to best available version (accepted manuscript or Version of Record) post agency embargo or if paid by article processing charge

CHORUS API enables content syndication and search services

Enables archiving via CLOCKSS, Portico, and other government sponsored archives

Infrastructure can link to data repositories when available

CHORUS is ready to work with agencies



Supporting Organizations (April 2014)

Publishers

AAAS
Acoustical Society of America
ACSESS
American Association of Anatomists
American Association for Cancer Research
American Association of Physicists in Medicine
American Association of Physics Teachers
American Astronomical Society
American Chemical Society
American Crystallographic Association, Inc.
American College of Chest Physicians
American College of Physicians
American Dental Association
American Diabetes Association
American Geophysical Union
American Inst of Aeronautics and Astronautics
American Institute of Biological Sciences
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American Mathematical Society
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American Medical Association
American Nuclear Society
American Physical Society
American Physiological Society
American Psychiatric Publishing
American Psychological Association
American Society for Biochemistry and
Molecular Biology
American Soc of Agricultural & Biological
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American Society of Agronomy
American Society of Civil Engineers

American Society of Mechanical Engineers
American Society for Microbiology
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American Speech-Language-Hearing Association
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Assoc for Computing Machinery (ACM)
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Entomological Society of America
European Respiratory Society
Fabricators and Manufacturers Association,
International
Genetics Society of America
GeoScienceWorld
Human Factors and Ergonomics Society
IEEE

iMedPub. Internet Medical Publishing
INFORMS
Institute of Physics Publishing
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Journal of Bone and Joint Surgery
Journal of Infection in Developing Countries
Journal of Rehabilitation Research and Dev
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Plus 10 more service providers & organizations



The logo for SHARE consists of the word "SHARE" in a bold, white, sans-serif font, centered within a dark blue rectangular background.

CHORUS aspires to be inclusive and interoperate with scholarly repositories and other systems providing access to scholarly articles

Met in July 2013 and February 2014 to discuss initiatives and explore areas of possible collaboration

Agreed to work jointly on persistent identifiers, metrics, and notification system.

What about Data?

Unclear whether there is one unified mechanism for data and publications

Value in linking data to the papers it supports

Simplify procedures for researcher compliance and funding agency monitoring

CHORUS infrastructure can link to data repositories when available

CHORUS will use standard identifier schemes



What Happens Next?

- Agency draft plans returned by OSTP; awaiting final approval
- Further engagement with agencies and other stakeholders
- Continued discussions between CHORUS and SHARE
- Process feedback from CHORUS Pilot; full production
- CHORUS as a model partnership with agencies (TBD)

With Thanks to....

My colleagues on the CHOR, Inc. Board

(Chaired by Susan King, American Chemical Society)

Howard Ratner, Executive Director, CHOR, Inc.

Ed Pentz, CrossRef

Brian Hitson, Mark Martin, Jeff Salmon, Walt Warnick (ret.),
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