

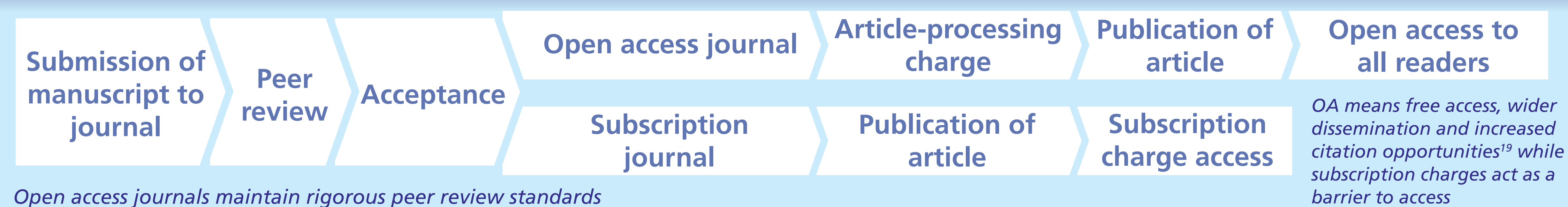
Open access: changing the way chemistry is published

What is open access (OA) journal publishing?

Open access is not self-publishing, nor a means to bypass peer review

- Free and permanent unrestricted online access to peer-reviewed articles
- Increased visibility for articles and increased potential citations
- Authors retain copyright to their work
- Data can be redistributed, reused and translated freely

Open access vs. subscription journal publishing process



Open access journals maintain rigorous peer review standards

Open access journals: the benefits

Authors	Researchers	Institutions	Funders
increased visibility for articles, potential citations and collaboration opportunities as access barriers are removed. Copyright retained.	No barriers to accessing content. OA enhances free flow of results and ideas. Researchers can reuse and share data from OA articles	Cost of publishing coupled to research output. Data can be placed in institutional repositories for enhanced dissemination.	Free access to data from funded research. Ability to analyse effectiveness of grants more easily
Educators	Public and special interest groups	Developing countries and small institutions	
Creative Commons licence ²⁰ allows for reuse of data. OA data can freely be used for course materials	Unhindered access to research funded through their taxes	Free access to latest results improves quality of research, and prevents "reinventing the wheel"	

Subscription journals: the drawbacks

- Access and copyright barriers**
Authors give up control of their research to the publisher before buying it back through subscription charges
- Economic unsustainability**
Institutions under increasing pressure from continued rise in subscription charges. Serial expenditures rose by 374% between 1986 and 2008²¹
- Disconnected charges**
Many publishers levy colour and page charges, which is incompatible with the present online environment

Open access publishing: the economics

Publishing involves operational costs – editorial management, peer review management, manuscript preparation, technical overheads etc.

The business model of most OA journals involves charging for the service of publishing – through a one-off 'article processing charge' (APC) – thus removing subscription barriers and allowing free access to everyone.

APCs are normally covered by the author's research grant²² or by their institution, and authors from low-income nations routinely have the APC waived.

Chemistry Central: open access to chemistry research

Chemistry Central (www.chemistrycentral.com) is an open access journal publishing platform, launched in 2006, operated by BioMed Central, and now owned by Springer.

Journal of Cheminformatics
www.jcheminf.com

Editors-in-Chief:
Christopher Steinbeck (EBI)
David Wild (Indiana University)

Covers cheminformatics and molecular modelling
Indexed by: Scopus, PubMed, PubMed Central, Google Scholar

Journal of SYSTEMS CHEMISTRY
www.systemschem.com

Editors-in-Chief:
Piet Herdewijn (Universiteit Leuven)
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Covers experimental and theoretical studies of complex molecular networks.

Chemistry Central Journal
www.journal.chemistrycentral.com

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Editor-in-Chief:
R. Stephen Berry (Univ. of Chicago)

Covers all areas of chemistry in 8 subject sections, each led by a group of Section Editors:

- Organic chemistry
- Analytical chemistry
- Inorganic chemistry
- Environmental chemistry
- Physical chemistry
- Materials and polymers
- Biological chemistry
- Food science

Indexed by: PubMed, PubMed Central, Web of Science, CABI, CAS, Scopus, Google Scholar

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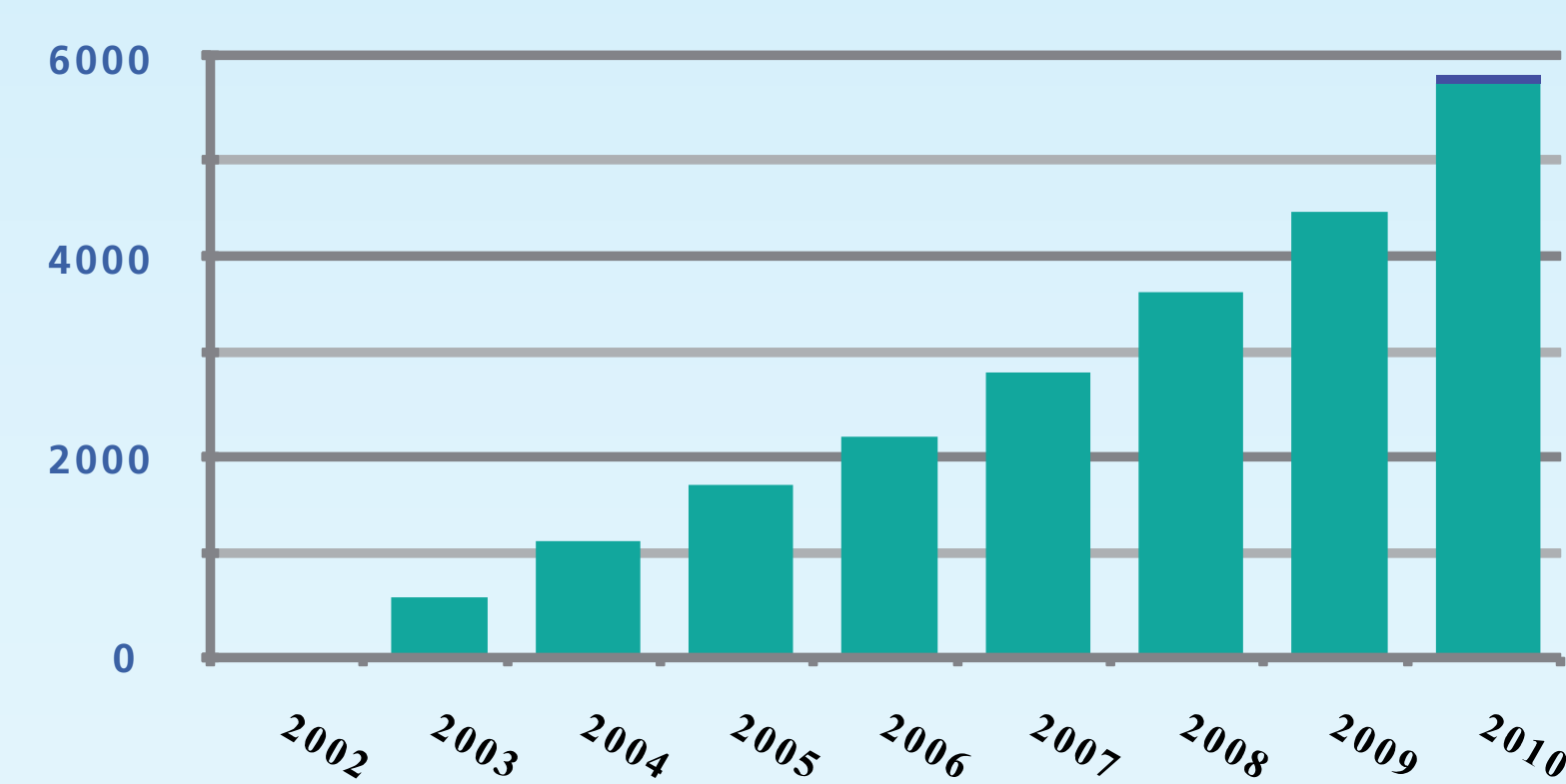
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The official journal of the ACS Geochemistry Division
Indexed by: PubMed, PubMed Central, Web of Science, CABI, CAS, GeoRef, Scopus, Google Scholar

The growth of open access



Total monthly submissions to OA journals published by BioMed Central and Chemistry Central



Number of titles listed in the Directory of Open Access Journals²³ - including 127 chemistry journals in 2010. About 20% of all peer reviewed articles are now open access²⁴

Conclusions

Having had success in biomedical and physics publishing, support continues to grow for open access in chemistry. The range of benefits for authors and institutions makes open access a viable and effective publishing model for chemistry research.

"By publishing lots of data, available for ready re-use by all scientists, we can radically change the way science is communicated and ultimately performed"

"Publications in open access journals tend to be cited more often which is good for your chemistry and good for your career"

Dr Steven M Bachrach
Trinity University²⁵

Dr Tony James
University of Bath²⁶

TIMELINES

1991: arXiv: the internet's first central, preprint repository; aimed at physicists but also computer science and mathematics¹

1997: PubMed: free search engine for accessing biomedical journal abstracts²

1998: Scholarly Publishing and Academic Resources Coalition (SPARC): calls for alternative, less costly journals³

1999: Open Archive Initiative: aims to build a low-barrier framework for digital, institutional repositories⁴

1999: BioMed Central launches OA journals⁵

2000: PubMed Central: free archive of full text versions of biomedical literature.⁶

2001: PLoS (Public Library of Science): non-profit, project aimed at creating a library of OA journals⁷

2002: Budapest Open Access Initiative⁸

2003: Bethesda Statement on Open Access Publishing⁹

2003: Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities¹⁰

2004: Launch of Open Repository¹¹

2004: Release of PubChem: a free resource that provides information on the biological activities of small molecules¹²

2005: Wellcome becomes first funder to introduce mandatory open access policy¹³

2006: Launch of Chemistry Central¹⁴

2007: ChemSpider launched¹⁵

2008: Open Access Scholarly Publishers Association launched¹⁶

2009: Journal of Cheminformatics publishes first articles

2009: Open Access Waiver Fund to support developing country authors initiated in association with Pfizer¹⁷

2010: Journal of Systems Chemistry publishes first articles

2010: Federal Research Public Access Act introduced in US senate¹⁸

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