

17.04.2024, PSI

# Open Access

Dr. Jochen Bihn

# OPEN ACCESS

- Background
- How to make your publications Open Access
  - Gold Open Access Journals
  - Hybrid Open Access Journals
  - Green Road to Open Access
- The State of Open Access
- Summary

# What is Open Access?

- Open Access is the practice of providing online access to scientific information that is free of charge to the reader and **free of most copyright and licensing restrictions.** <sup>1&2</sup>
- Open Access is a kind of access, not a kind of business model, license, or content. <sup>2</sup>

(1) [https://openaccess.mpg.de/2076881/2014\\_05-h2020-factsheet-open-access-faq.pdf](https://openaccess.mpg.de/2076881/2014_05-h2020-factsheet-open-access-faq.pdf)

(2) <http://legacy.earlham.edu/~peters/fos/overview.htm>

# Global Change Biology

PERSPECTIVE Free Access

## A simple explanation for declining temperature sensitivity with warming

E. M. Wolkovich , J. Auerbach, C. J. Chamberlain, D. M. Buonaiuto, A. K. Ettinger, I. Morales-Castilla, A. Gelman,

First published: 05 August 2021 | <https://doi.org/10.1111/gcb.15746>

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### Abstract

Recently, multiple studies have reported declining phenological sensitivities ( $\Delta$  days per  $^{\circ}\text{C}$ ) with higher temperatures. Such observations have been used to suggest climate change is reshaping biological processes, with major implications for forecasts of future change. Here, we show that these results may simply be the outcome of using linear models to estimate nonlinear temperature responses, specifically for events that occur after a cumulative thermal threshold is met—a common model for many biological events. Corrections for the apparent decline. C estimates based on cal without any shift in the to identify when and h

### Details

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# Global Change Biology

PRIMARY RESEARCH ARTICLE Open Access

## Drought stress mitigation by nitrogen in boreal forests inferred from stable isotopes

Choimaa Dulamsuren, Markus Hauck

First published: 26 July 2021 | <https://doi.org/10.1111/gcb.15813> | Citations: 1

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SECTIONS

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### Abstract

Forest growth in most and low nitrogen availa increasing forest area i southern parts of the dendrochronological a answering the question nitrogen shortage at li study from larch forest ring analysis and bioin lichens that, in the stud boreal forest in Inner A fertilization from livestock kept in the vicinity and the edge of the forests. The most likely

### Details

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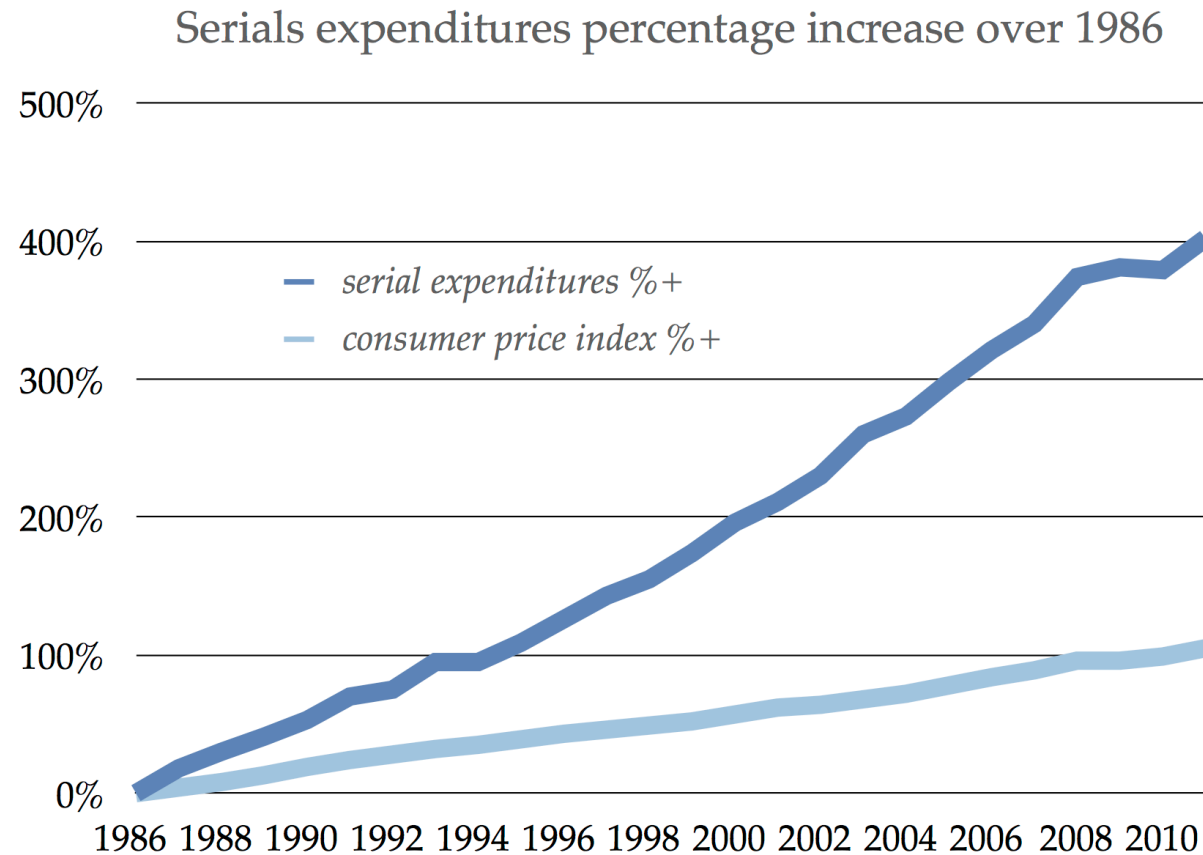
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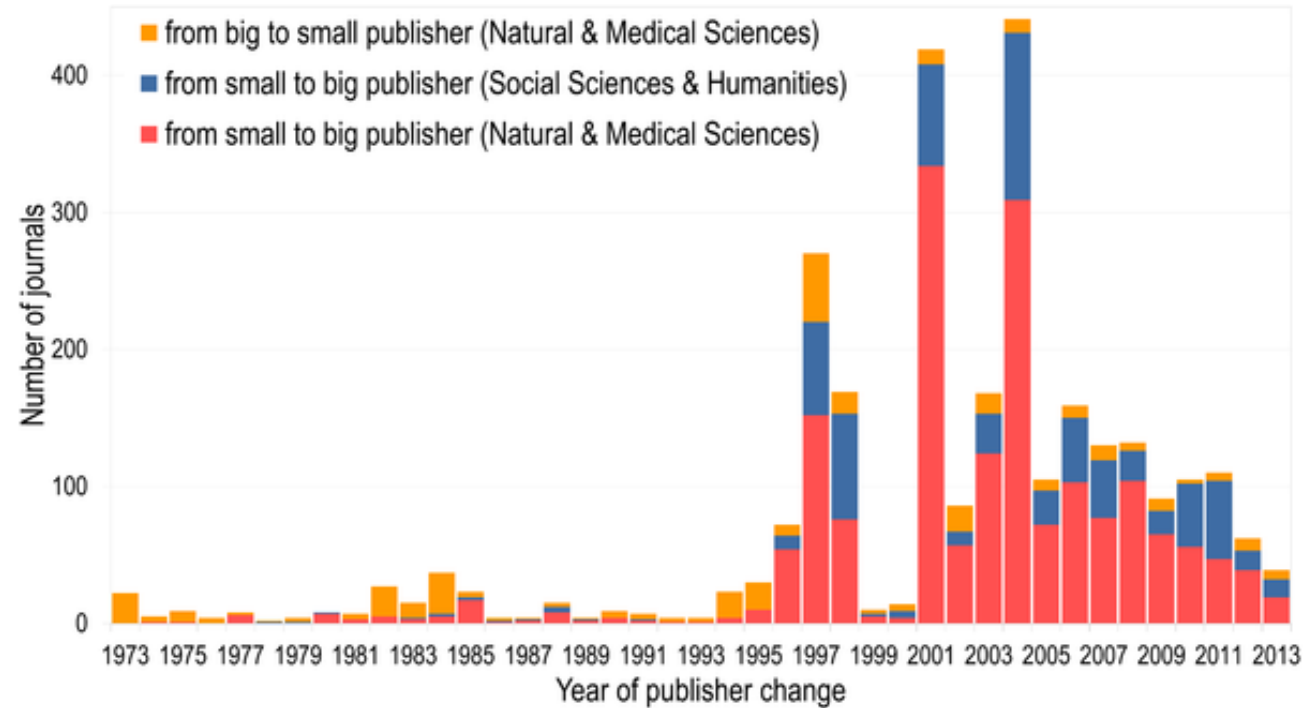
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# Origins of Open Access: The Serials Crisis



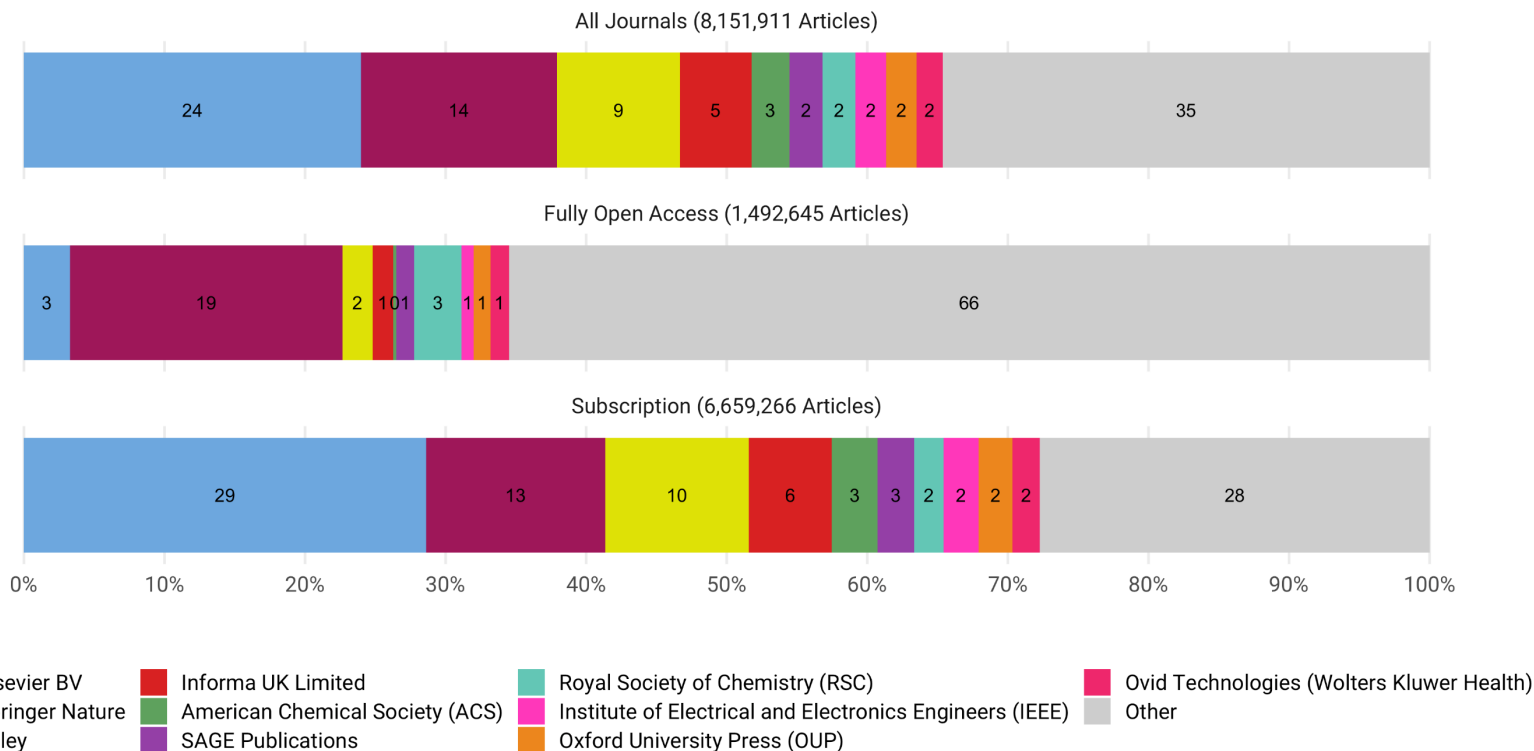
Adapted from Stuart Shieber: [Why open access is better for scholarly societies](#), licensed under a [Creative Commons Attribution 3.0 Unported License](#).

# Big Fish eats Little Fish



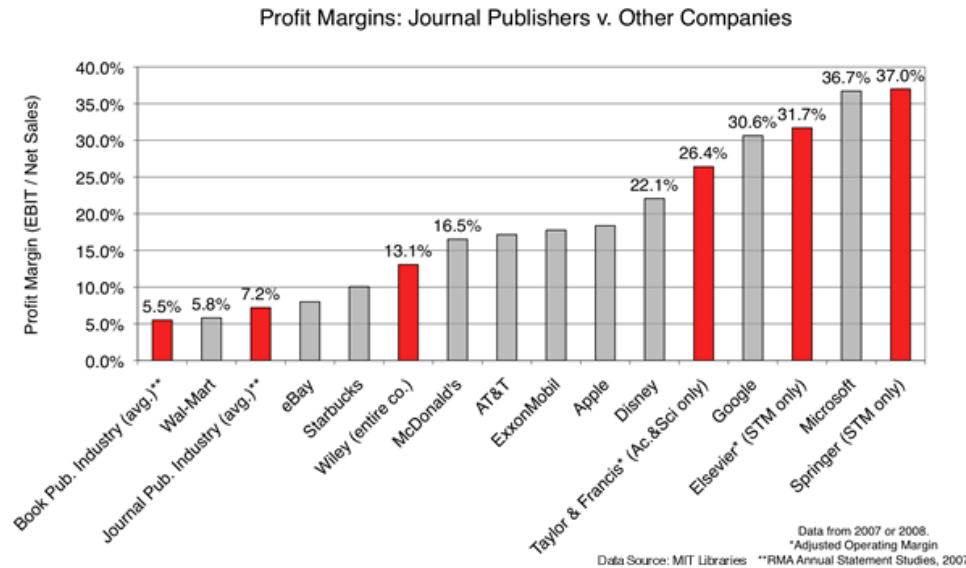
Number of journals changing from small to big publishers, and big to small publishers per year of change.

# Publisher Market Share 2014-2018



The global publishing landscape is dominated by a few large publishers.

# The Academic Publishing Market

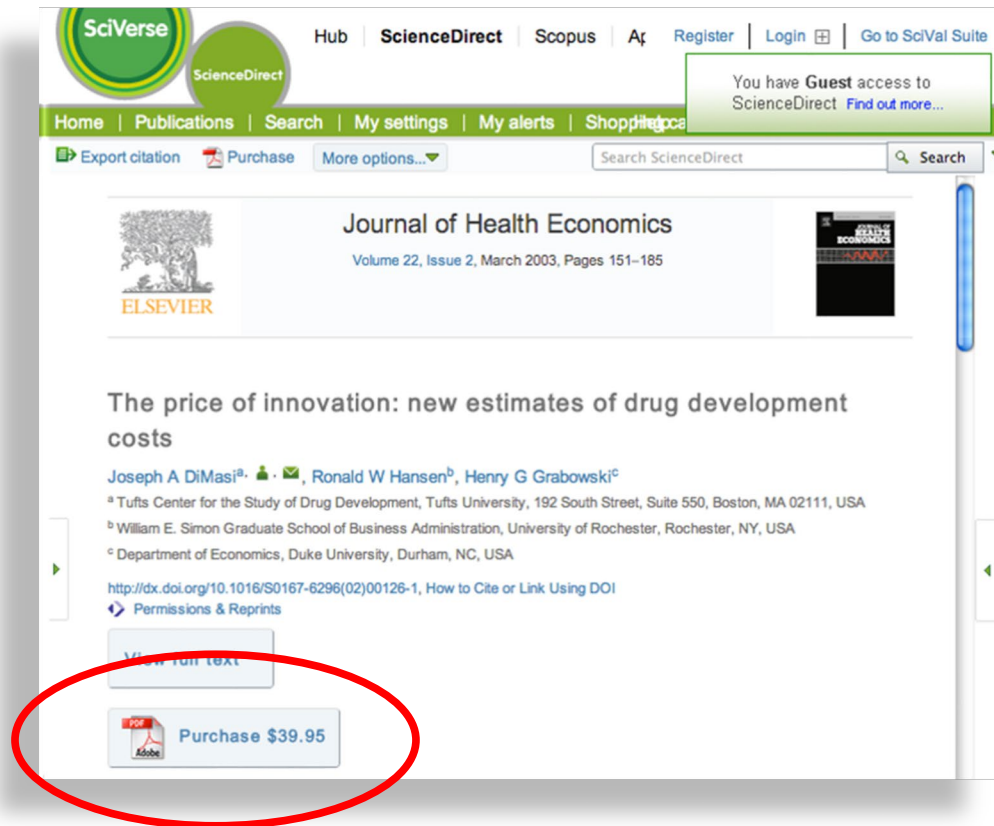


- oligopolistic conditions
- dysfunctional market
- huge profit margins

“Publishing obscure academic journals is that rare thing in the media industry: a license to print money.” (The Economist, 14 April 2012)



# The Access Problem



- Articles are only accessible to a fraction of potential users.
- Research is having only a fraction of its potential use and impact.
- Research is achieving only a fraction of its potential productivity and progress.

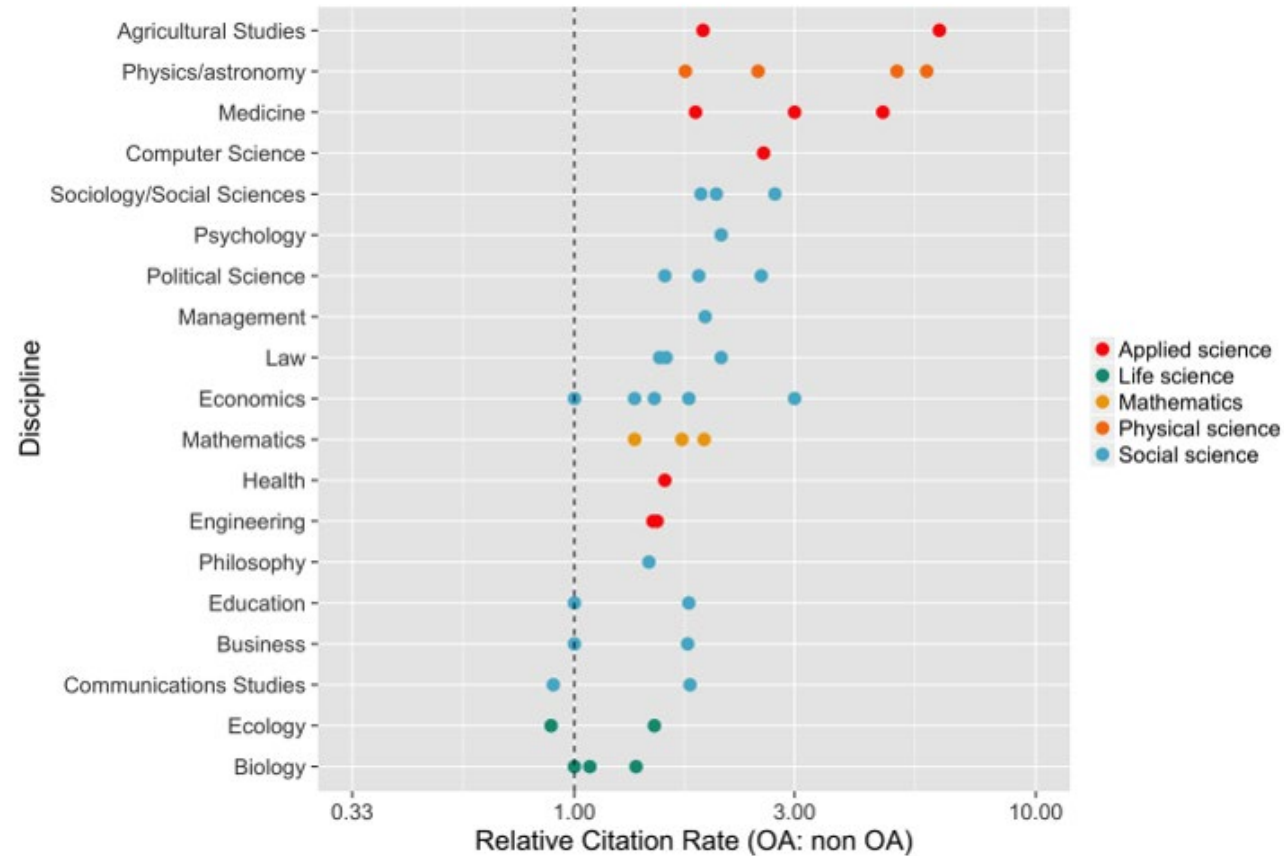
# Some Benefits of Open Access ...



... even if in the end OA turns out not to be cheaper

Source: Karolinska Institutet, University Library: [Open Access](#), adapted from [Benefits of Open Access](#), Danny Kingsley & Sarah Brown, [CC-BY](#).

# Open Access articles get more citations



Source: McKiernan et al. 2016: How open science helps researchers succeed. eLife 5, e16800, <http://dx.doi.org/10.7554/eLife.16800>, CC-BY.

# How to publish Open Access

## 3 Types of Journals

### Gold

All articles are freely accessible for all on the journal website



Many Gold OA journals require that authors pay a fee (Article processing charge = APC).

### Hybrid

Some articles are freely accessible, others are pay per view/subscribers only



Hybrid OA journals offer the option to publish Open Access for a fee during submission or/and acceptance.

### Subscription

All articles are pay per view or accessible for subscribers only



You will have to use the green route to Open Access and make your article freely available in DORA.

# Gold Open Access Journals

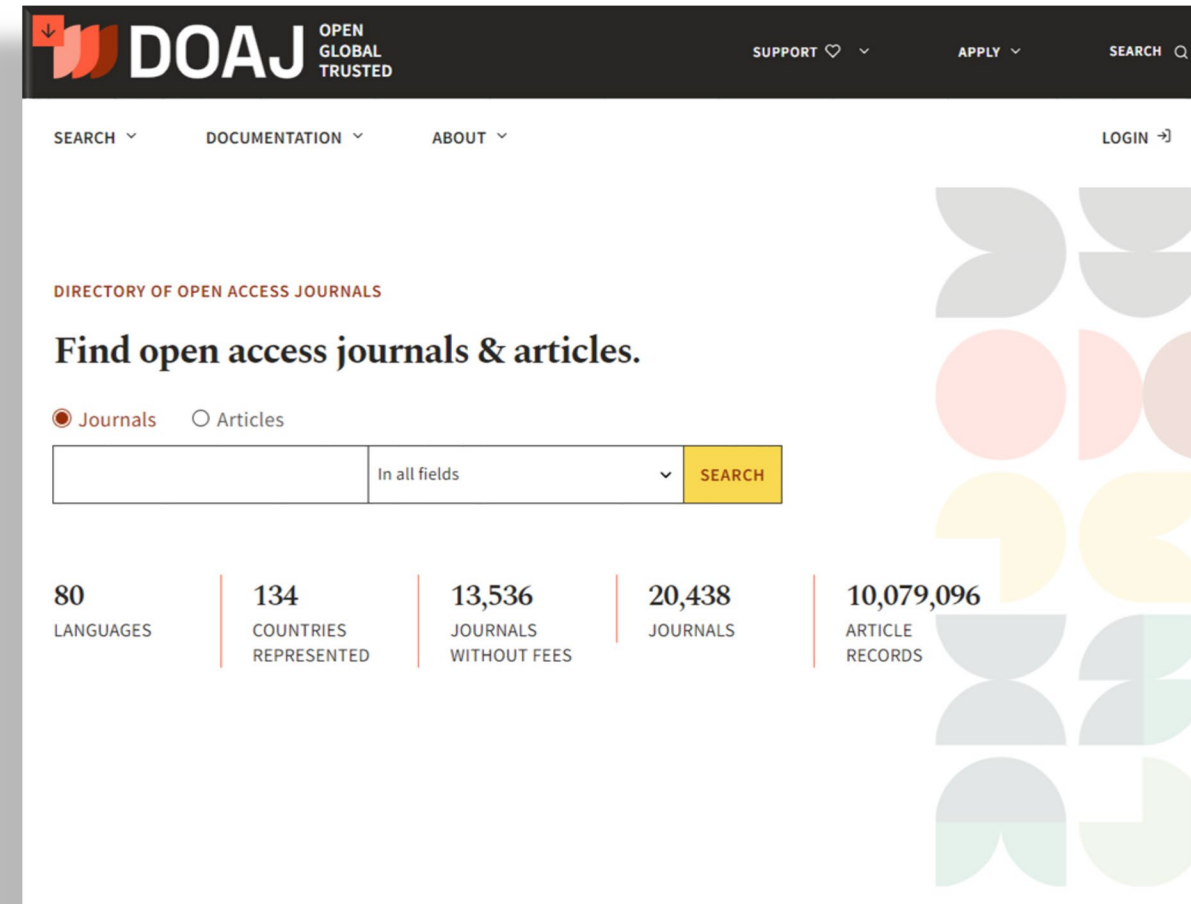
## Open Access Journals

- All articles are immediately published Open Access
- Authors usually retain copyright and articles are published under [Creative Commons Attribution License](#).
- Publisher may be commercial, non-profit, or societies.
- Most are peer reviewed.
- OA journals earn respectability the same way other journals do: through the quality of their articles and the prominence of the people they attract as authors, editors, etc.



## Directory of Open Access Journals [www.doaj.org](http://www.doaj.org)

- > 20000 OA-Journals
- Whitelist for OA journals (see: [criteria for inclusion](#))
- Not in DOAJ?
  - “Hybrid OA journal”
  - Very new journal
  - Low quality OA journals



The screenshot shows the homepage of the Directory of Open Access Journals (DOAJ). The header includes the DOAJ logo with the tagline 'OPEN GLOBAL TRUSTED' and navigation links for 'SUPPORT', 'APPLY', and 'SEARCH'. Below the header, there are links for 'SEARCH', 'DOCUMENTATION', and 'ABOUT', along with a 'LOGIN' button. The main content area features the text 'DIRECTORY OF OPEN ACCESS JOURNALS' and 'Find open access journals & articles.' There are radio buttons for 'Journals' (selected) and 'Articles'. A search bar is present with a dropdown menu set to 'In all fields' and a yellow 'SEARCH' button. At the bottom, a statistics section displays five metrics: 80 LANGUAGES, 134 COUNTRIES REPRESENTED, 13,536 JOURNALS WITHOUT FEES, 20,438 JOURNALS, and 10,079,096 ARTICLE RECORDS. The right side of the page is decorated with a pattern of colorful, stylized shapes.



# OA Journals in Scopus and Web of Science

## Scopus

- > 7000 OA Journals indexed
- Scopus > Sources: <https://www.scopus.com/sources.uri>

The screenshot shows the Scopus Sources page. In the 'Filter refine list' on the left, the 'Display options' section has 'Display only Open Access journals' selected and circled in red. The main results area shows 7,183 results with a table of journal entries. The table columns include Source title, CiteScore, Highest percentile, Citations 2019-22, Documents 2019-22, and % Cited. The first row is 'Living Reviews in Relativity - Open Access' with a CiteScore of 65.5 and 1,245 citations.

## Web of Science

- > 5500 OA Journals indexed
- Journal Citation Reports > Journals: <https://jcr.clarivate.com/jcr/browse-journals>

The screenshot shows the Clarivate Journal Citation Reports page. A modal window for 'Open Access (OA)' filters is open, with 'Open Access' selected and circled in red. The background shows a list of 5,718 journals with columns for Journal name, Category, Total Citations, and 2022 JIF. The first row is 'Physics, Particles & Fields - SCIE' with 3,705 citations and a JIF of 6.34.

## How to assess the quality of OA Journals

- Included in DOAJ?
- Read some articles in the journal!
- Have a look at the journal's website!
- Have a look at the editorial board!
- Is the publisher a member of [OASPA](#) (Open Access Scholarly Publishers Association) or [COPE](#) (Committee on Publication Ethics)?
- More tips: [Think. Check. Submit. Open Access Journal Quality Indicators](#)
- Do not trust «blacklists» of *predatory* journals. Use critical thinking.



### Are you submitting your research to a trusted journal?

Publishing your research results is key to **advancing your discipline** – and your **career** – but with so many journals in your field, how can you be sure that you're choosing a **reputable, trustworthy** journal?



Tips to **confirm** a journal's credentials and decide if it will help you **reach** the right audience with your research, and make an **impact** on your career.

Take control of your career at [thinkchecksubmit.org](https://thinkchecksubmit.org)

# Business Models of Gold Open Access Journals

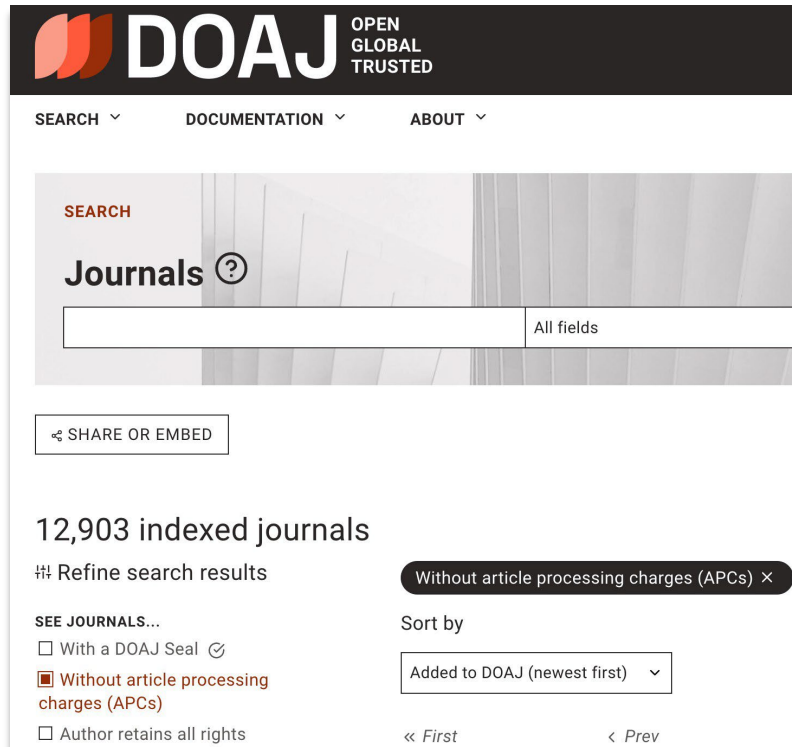
## Neither authors nor readers pay any fees

- Costs of publishing are funded by an academic institution, society, government etc.
- Publication model is called [Diamond Open Access](#) (or Platinum Open Access)
- Most journals are community-driven, academic-led, and academic-owned publishing initiatives
- less present in the physical sciences & technology compared to social sciences and arts & humanities
- Examples:
  - [SCOAP<sup>3</sup>](#) Initiative based at CERN to convert core high energy physics journals to OA
  - [SciPost](#): Physics & Chemistry; grassroots initiative; funded by academic institution

## Free for readers, authors pay a fee

- Author are charged a publication fee after acceptance of the article (Article Processing Charge : APC)
- The cost of APCs varies considerably depending on the publisher and the journal
  - Median APC: 2000 EUR (OpenAPC, Dec 2023)
  - Acta Palaeontologica Polonica 22 EUR
  - Cell Genomics: 7960 EUR

# How to find a Diamond OA journal



DOAJ OPEN GLOBAL TRUSTED

SEARCH DOCUMENTATION ABOUT

SEARCH

Journals ?

All fields

SHARE OR EMBED

12,903 indexed journals

Refine search results

Without article processing charges (APCs) x

SEE JOURNALS...

With a DOAJ Seal

Without article processing charges (APCs)

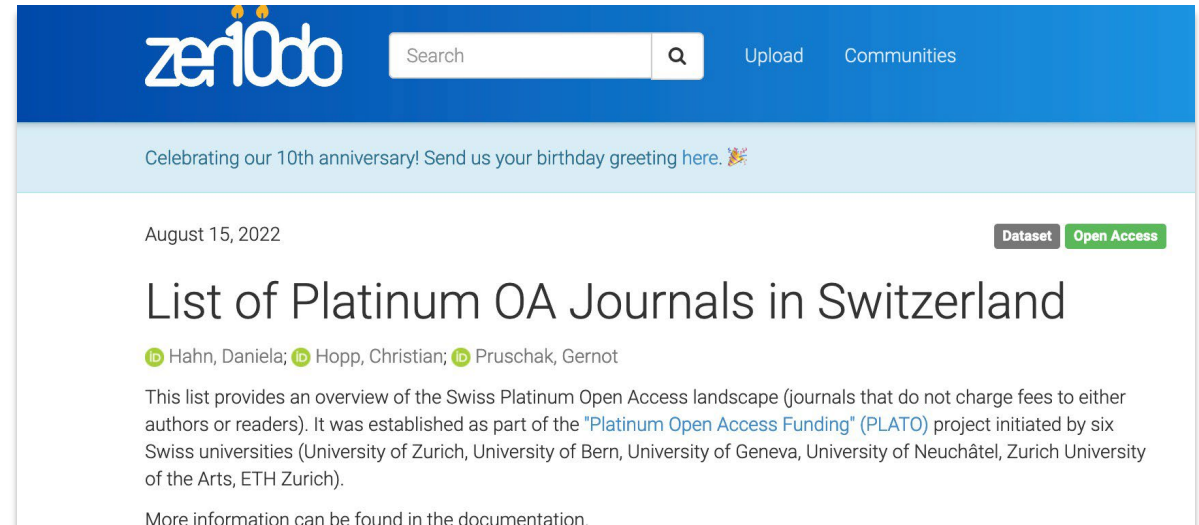
Author retains all rights

Sort by

Added to DOAJ (newest first)

<< First < Prev

[www.doaj.org](http://www.doaj.org)



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Celebrating our 10th anniversary! Send us your birthday greeting here.

August 15, 2022

Dataset Open Access

## List of Platinum OA Journals in Switzerland

Hahn, Daniela; Hopp, Christian; Pruschak, Gernot

This list provides an overview of the Swiss Platinum Open Access landscape (journals that do not charge fees to either authors or readers). It was established as part of the "Platinum Open Access Funding" (PLATO) project initiated by six Swiss universities (University of Zurich, University of Bern, University of Geneva, University of Neuchâtel, Zurich University of the Arts, ETH Zurich).

More information can be found in the documentation.

[List of Swiss Platinum OA Journals v3.0](#)

# Business Models of Gold Open Access Journals

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  - Median APC: 2000 EUR (OpenAPC, Dec 2023)
  - Acta Palaeontologica Polonica 22 EUR
  - Cell Genomics: 7960 EUR

## How to pay the APC

Is the publication an outcome of a SNSF-funded project?

- The SNSF offers funding for articles in pure OA journals.
- Funding is independent from the project budget and application can be submitted at any time, even after the project has ended.
- Guidelines: <https://oa100.snf.ch/en/funding/journal-articles/>

## Open Access agreements (Gold OA journals)

- The library has agreements about free OA publishing with several publishers of full OA journals
- APCs are paid by the library. Authors are not charged for their articles.
- Requirements: corresponding/submitting author has to be (co-)affiliated with Eawag/Empa/WSL/PSI.
- Mind the gap! Eligible journals, eligible article types, article quota, workflow...
- Further information, lists of eligible journals, workflow, eligibility criteria:  
<https://www.lib4ri.ch/open-access-agreements>

Lib4RI has agreements with the following OA publishers (pure OA journals):

- Copernicus
- Frontiers
- MDPI
- ACS
- Elsevier
- IEEE
- IOP Publishing
- IWA
- Royal Society
- SAGE

# Open Access Publication Fund

The library pays Open Access fees for publications in full Open Access journals.

## Funding conditions:

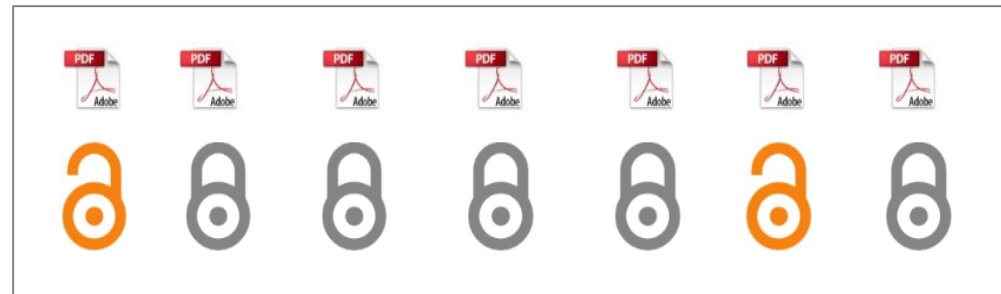
- The **corresponding author** must have a (co-)affiliation with Eawag/Empa/PSI/WSL on the article.
- Only pure OA journals, see [Directory of Open Access Journals \(DOAJ\)](#). [no hybrid OA journals]
- The article is published under a [Creative Commons licence](#) (preferably [CC-BY](#) ).
- Articles will be considered only if there is **no other source of funding available**. We expect researchers to request funding for OA publications from their funding agency if they can do so (SNSF !).
- The article processing charges for publications may not exceed **CHF 2`500** per article (excl. VAT).
  
- Do not pay the APC! Financing your publication is only possible if the invoice still has to be paid, there will be no retrospective payments or reimbursements.
- Further information: <https://www.lib4ri.ch/open-access-fund>



# Hybrid Open Access Journals

## Hybrid Open Access Journals

- Subscription journals with an Open Access **option** for individual articles
- Authors decide if they want to make their articles OA (for a fee)
- Most subscription journals offer an OA option (Springer Open Choice, Wiley Online Open ...)
- **Mixed Content:** Closed Access and OA articles in one journal



## Read & Publish Agreements

- Agreements cover reading access + free Open Access publishing for a single flat fee paid by the library.

### Lib4RI covers the APCs at the following publishers:

- ACS (SNSF funded papers excluded)
- AIP
- APS
- Cambridge University Press
- Elsevier
- IOP
- Microbiology Society
- Nature (quota will soon be exceeded)
- Royal Society
- Royal Society of Chemistry
- Sage
- Springer
- Oxford University Press
- Wiley

## Read & Publish Agreements: Conditions for free OA



The **corresponding author** is affiliated with Eawag/Empa/PSI/WSL and mentions it at the time of submission/acceptance



the **journal** is included in the list of titles covered by the agreement



the **article type** is included in the agreement (e.g. editorials or commentaries are generally not included)



the agreement is in force at the time **acceptance** of the article



the swiss annual article **quota** is not yet used up (at acceptance of article)



the corresponding author chooses the Open Access option and a **licence** (preferably CC-BY)

**Detailed information for each publisher on our website:** <https://www.lib4ri.ch/open-access-agreements>

## Read & Publish Agreements: Workflow for Authors

- Submit your manuscript using your institutional e-mail address
- After acceptance:
  - Identify yourself as a member of Eawag/Empa/PSI/WSL (select your affiliation, e-mail, IP)
  - Select Open Access for your paper
  - Select a Creative Commons license for your paper (CC BY, CC BY-NC, etc.)
    - Highly recommended: **CC BY = Creative Commons Attribution 4.0**
- Publisher and library handle the invoice process / APC approval
- More details for workflows at each publisher:  
<https://www.lib4ri.ch/open-access-agreements>

# Example: Author workflow at Elsevier

Corresponding author receives an email post acceptance with a link an unique link to complete the author journey and choose publishing options

Click on 'Complete the Rights and Access information form' or make changes and resubmit link in case you already completed the journey previously

## Elsevier: Author journey demo for Swiss institutions

Corresponding author  
E-mail address  
Journal Fuel  
Our reference JFUE237124  
PII S0016-2361(19)31362-6

### Welcome Dr

To help us finalize the publication of your article please complete the publishing form(s) below.

**Note:** you will receive a confirmation e-mail after completing each form.

When placing orders via these forms, you may be asked to provide the information listed below.

- **Purchase Order Number**  
If a Purchase Order Number is required for payment by your institution and you already have one, please provide it via the publishing form(s). Note that you may still complete the form(s) now, even if you do not have the Purchase Order number available yet.
- **Tax Exemption Number and Tax Exemption Certificate** if applicable to your institution.

For Bank and company address details, see the [Information you may need to supply to complete the options](#).

### Rights and Access

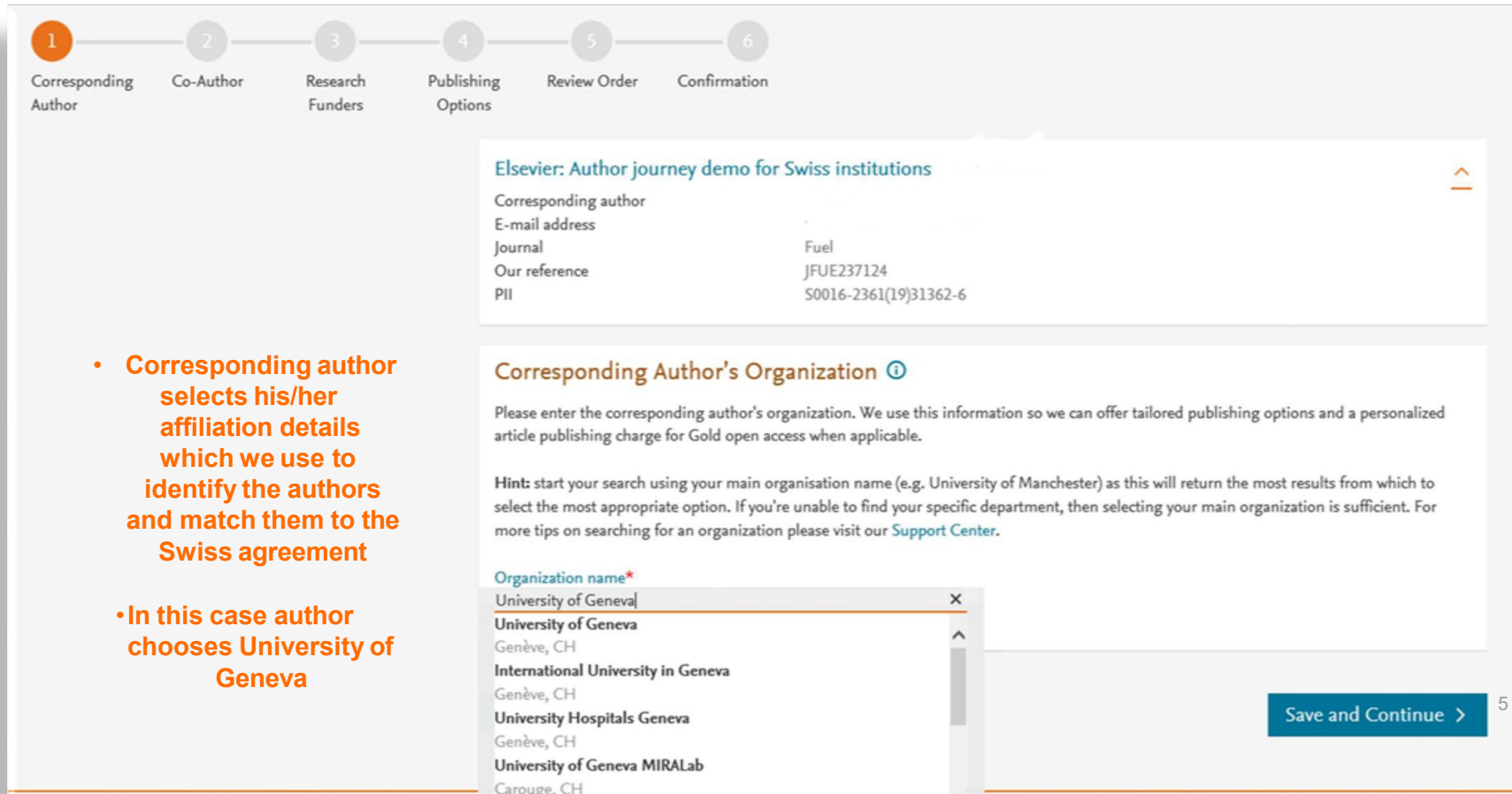
[Complete the Rights and Access information form](#)

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For information on author rights visit Elsevier's [Author Rights](#) pages.

For information on publishing open access with Elsevier visit [elsevier.com/openaccess](#).

# Example: Author workflow at Elsevier



The screenshot shows a multi-step author workflow. Step 1, 'Corresponding Author', is active. The interface includes a progress bar at the top with steps: 1. Corresponding Author, 2. Co-Author, 3. Research Funders, 4. Publishing Options, 5. Review Order, and 6. Confirmation.

Below the progress bar, a summary box displays the following information:

Corresponding author	
E-mail address	
Journal	Fuel
Our reference	JFUE237124
PII	S0016-2361(19)31362-6

The main section is titled 'Corresponding Author's Organization' and contains the following text:

Please enter the corresponding author's organization. We use this information so we can offer tailored publishing options and a personalized article publishing charge for Gold open access when applicable.

**Hint:** start your search using your main organisation name (e.g. University of Manchester) as this will return the most results from which to select the most appropriate option. If you're unable to find your specific department, then selecting your main organization is sufficient. For more tips on searching for an organization please visit our [Support Center](#).

A search dropdown menu is open, showing the following options:

- Organization name\*
- University of Geneva
- University of Geneva
- Genève, CH
- International University in Geneva
- Genève, CH
- University Hospitals Geneva
- Genève, CH
- University of Geneva MIRALab
- Carouge, CH

A 'Save and Continue >' button is visible in the bottom right corner of the form area.

- Corresponding author selects his/her affiliation details which we use to identify the authors and match them to the Swiss agreement
- In this case author chooses University of Geneva

# Example: Author workflow at Elsevier

Based on information you have provided, your publishing options are shown below

### Gold Open Access

Publish Open Access

As a corresponding author affiliated with a Swiss institution, I choose to publish my article open access, making my final published article available to everyone.

Once my institution verifies my affiliation, the [agreement between Swiss institutions and Elsevier](#) will cover the APC. I can share my article in accordance with the user license that I select.

**i** Your institution encourages you to publish Gold OA and will cover the APC

#### Article Publishing Charge (APC)

If your institution does not approve paying the APC, you will receive an invoice for the APC of EUR 3,400.00 (ex. VAT). You then have the option to either pay the APC invoice or publish your article free of charge under the subscription model. To publish your article under the subscription model, [contact Researcher Support](#) within two weeks of the invoice date. Elsevier will send the invoice to the email address you have provided on your author profile.

### Subscription

Publish Subscription

As a corresponding author affiliated with a Swiss institution, I choose to publish my article subscription, making my final published article immediately available to all subscribers.

[Elsevier's sharing policy](#) explains how I can share my accepted manuscript.

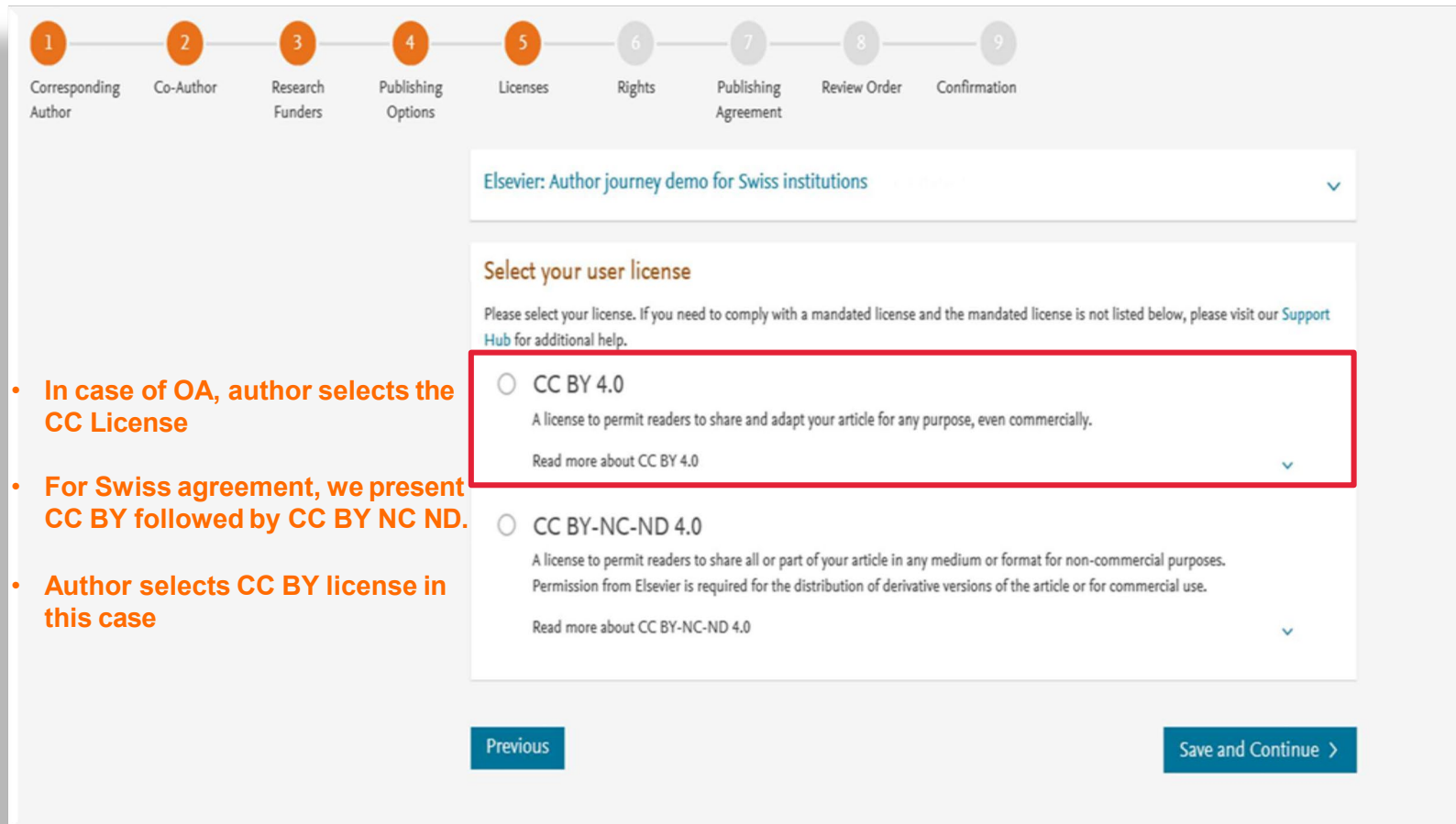
Previous

Save and Continue >

- Based on the affiliation details, the author sees the Publishing Options. Gold OA option is followed by Subscription option and we make it clear that agreement covers full APC
- If the librarian at the consortium rejects the author request in the Elsevier Platform, we also make it clear that the authors will receive a full price invoice
- Author selects Gold OA



# Example: Author workflow at Elsevier



The screenshot shows a multi-step author workflow. Step 5, 'Licenses', is the current step. It displays a dropdown menu with the title 'Elsevier: Author journey demo for Swiss institutions'. Below this, the section 'Select your user license' is shown. It contains two radio button options: 'CC BY 4.0' and 'CC BY-NC-ND 4.0'. The 'CC BY 4.0' option is highlighted with a red rectangular box. Below each option is a brief description and a link to 'Read more about' the license. At the bottom of the workflow, there are 'Previous' and 'Save and Continue >' buttons.

- In case of OA, author selects the CC License
- For Swiss agreement, we present CC BY followed by CC BY NC ND.
- Author selects CC BY license in this case

## But what can you do

- ... if there is no suitable pure Open Access journal for your paper?
- ... if there is no Read & Publish deal for the journal you selected?
- ... if you are not the corresponding author of the paper?



# Green Road to Open Access

# Green Open Access

## Publisher Website: Closed Access

ACS Publications  
Most Trusted. Most Cited. Most Read.

RETURN TO ISSUE | < PREV RESEARCH ARTICLE NEXT >

### Water Inhibition of Oxymethylene Dimethyl Ether Synthesis over Zeolite H-Beta: A Combined Kinetic and *in Situ* ATR-IR Study

Christophe J. Baranowski,<sup>1</sup> Thibault Fovanna,<sup>1</sup> Maneka Roger,<sup>1</sup> Matteo Signorile,<sup>1</sup> Joseph McCaig,<sup>4</sup> Ali M. Bahmanpour,<sup>5</sup> Davide Ferri,<sup>6</sup> and Oliver Kröcher<sup>1\*</sup>

Cite this: *ACS Catal.* 2020, 10, 15, 8106–8119

Publication Date: June 22, 2020  
<https://doi.org/10.1021/acscatal.0c01805>  
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PDF (4 MB) | | Supporting Info (1) |

**Abstract**

The effect of water on the kinetics of oxymethylene dimethyl ether synthesis from dimethoxymethane (OME<sub>1</sub>) and trioxane (TRI) investigated in a combined kinetic and *in situ* infrared spectroscopy study. The kinetic study revealed that a water content in OME<sub>1</sub> as low as 0.21 wt % can significantly hamper the reaction rate. The apparent activation energy increased with the water concentration, but the frequency factor was more severely affected and decreased by an order of magnitude when the water concentration was doubled. With increasing water content, the chain growth mechanism shifted from competition between the direct reaction of TRI with water to form methylene glycol units which were inserted in the OME chain. The competition between water and the reactants for binding to the active sites of the zeolite was studied by means of modulated excitation attenuated total reflection infrared (ME-ATR-IR) spectroscopy experiments. It demonstrated a competition for silanol sites and Brønsted acid sites (BAS) according to the binding affinity order OME<sub>1</sub> > H<sub>2</sub>O > TRI. This trend was confirmed by a DFT study of the interaction of OME<sub>1</sub>, TRI, and H<sub>2</sub>O with BAS. Combined together, these results indicated that the presence of water inhibited the adsorption of TRI on the binding sites, which prevented OME growth. Hence, even very low levels of water must be controlled for an efficient catalytic process.

**KEYWORDS:** polyoxymethylene dimethyl ethers, zeolite, water, modulation excitation spectroscopy, attenuated total reflection infrared spectroscopy

**1. INTRODUCTION**

Zeolites are crystalline aluminosilicate materials with unique and advantageous features: silicon tetrahedra combine to form frameworks with large surface areas and well-defined pores of molecular dimensions. The use of three-dimensional micropores of various sizes connected by channels and cages provides them with unique properties such as shape selectivity or activity by molecular confinement. Their acidic environments from the abundant substitution of a silicon framework atom by a trivalent metal cation, such as aluminum, generating a negative charge in the lattice balanced by a bridging hydroxyl group.<sup>1</sup> Nowadays, the chemical industry routinely uses the catalytic properties of zeolites toward various reactions such as hydrogenation, alkylation, or isomerization.<sup>2</sup> Despite extensive investigations, their activity for various chemical reactions has not yet been fully understood.

Both positive and negative influences of water on chemical reactions in zeolites have been reported. The dehydrogenation rate of 1-propanol on an H-ZSM-5 zeolite was significantly hampered in the presence of water due to the stabilization of a reaction intermediate, which increased the activation energy.<sup>3</sup> On the contrary, catalytic cracking using zeolite beta was improved by the presence of water in the feed, due to a better dispersion of hydrocarbons within the zeolite.<sup>4</sup> For the same reaction, the concentration of water in the zeolite is also a parameter which can positively or negatively affect the kinetics: low amounts of water increased the reaction rate for C–H bond activation by an order of magnitude but had a deleterious effect on the kinetics at higher concentrations.<sup>5</sup>

Recently, it was demonstrated that the presence of water changes the nature of the acidic sites in a zeolite from a bridging hydroxyl group to a solubilized hydronium cluster, as illustrated in Scheme 1.<sup>6</sup> Hydronium ions in the zeolite channels displace the available open volume and interact differently with reactants compared to a bridging hydroxyl group.<sup>7</sup> In the liquid phase, the presence of water in the zeolite channels can have an important impact on the reaction rate

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 Published: June 22, 2020

\*Corresponding author: oliver.kroecher@psi.ch; Tel.: +41 (0)56 310 20 66

## Institutional Repository: Open Access

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**DORA PSI**  
 Digital Object Repository at PSI

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Water inhibition of oxymethylene dimethyl ether synthesis over zeolite H-beta: a combined kinetic and *in situ* ATR-IR study

Baranowski CJ, Fovanna T, Roger M, Signorile M, McCaig J, Bahmanpour AM

APA

**Citation** Baranowski, C. J., Fovanna, T., Roger, M., Signorile, M., McCaig, J., Bahmanpour, A. M., et al. (2020). Water inhibition of oxymethylene dimethyl ether synthesis over zeolite H-beta: a combined kinetic and *in situ* ATR-IR study. *ACS Catalysis*, 10(15), 8106–8119. <https://doi.org/10.1021/acscatal.0c01805>

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The effect of water on the kinetics of oxymethylene dimethyl ether (OME) and trioxane (TRI) has been investigated in a combined kinetic and *in situ* infrared spectroscopy study. The kinetic study revealed that a water content in OME<sub>1</sub> as low as 0.21 wt % can significantly hamper the reaction rate. The apparent activation energy increased with the water concentration, but the frequency factor was more severely affected and decreased by an order of magnitude when the water concentration was doubled. With increasing water content, the chain growth mechanism shifted from competition between the direct reaction of TRI with water to form methylene glycol units which were inserted in the OME chain. The competition between water and the reactants for binding to the active sites of the zeolite was studied by means of modulated excitation attenuated total reflection infrared (ME-ATR-IR) spectroscopy experiments. It demonstrated a competition for silanol sites and Brønsted acid sites (BAS) according to the binding affinity order OME<sub>1</sub> > H<sub>2</sub>O > TRI. This trend was confirmed by a DFT study of the interaction of OME<sub>1</sub>, TRI, and H<sub>2</sub>O with BAS. Combined together, these results indicated that the presence of water inhibited the adsorption of TRI on the binding sites, which prevented OME growth. Hence, even very low levels of water must be controlled for an efficient catalytic process.

**Water inhibition of oxymethylene dimethyl ether synthesis over zeolite H-Beta: a combined kinetic and *in situ* ATR-IR study**

Christophe J. Baranowski<sup>1,†</sup>, Thibault Fovanna<sup>1,†</sup>, Maneka Roger<sup>1,†</sup>, Matteo Signorile<sup>1</sup>, Joseph McCaig<sup>4</sup>, Ali M. Bahmanpour<sup>5</sup>, Davide Ferri<sup>6</sup>, Oliver Kröcher<sup>1,\*</sup>

<sup>1</sup> Institute of Chemical Sciences and Engineering, École Polytechnique Fédérale de Lausanne (EPFL), 1015 Lausanne, Switzerland  
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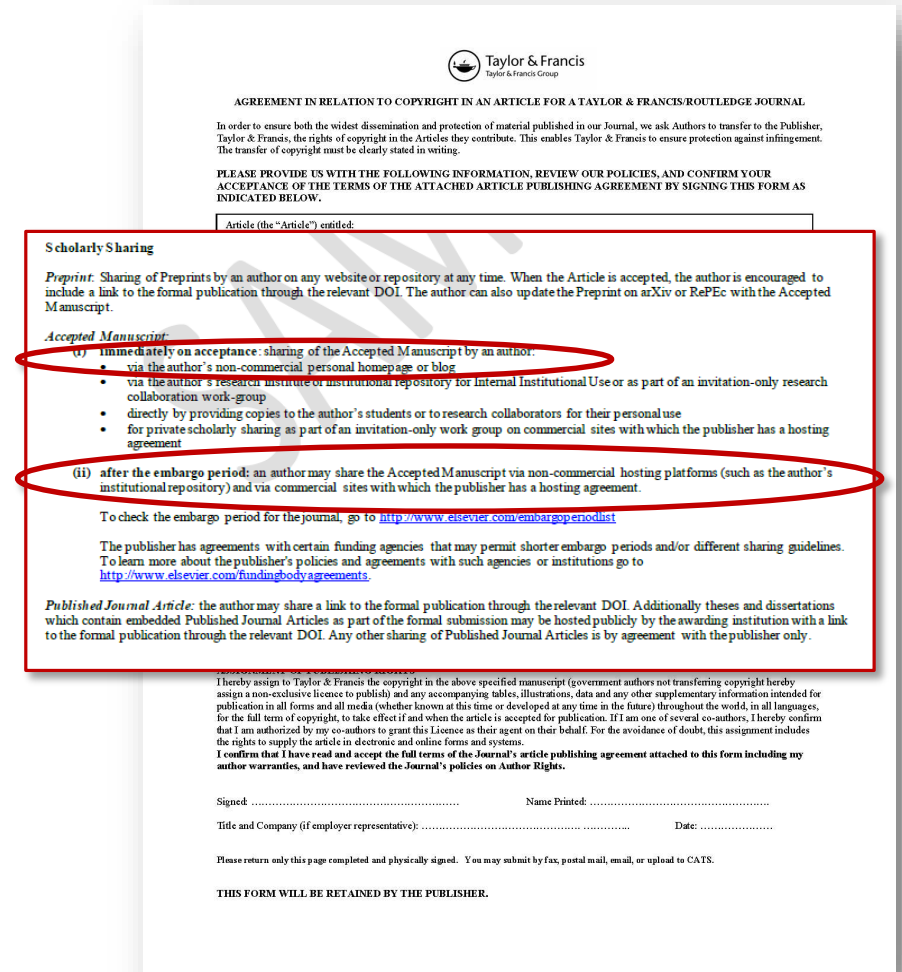
**ABSTRACT:** The effect of water on the kinetics of oxymethylene dimethyl ether (OME) synthesis from dimethoxymethane (OME<sub>1</sub>) and trioxane (TRI) has been investigated in a combined kinetic and *in situ* infrared spectroscopy study. The kinetic study revealed that a water content in OME<sub>1</sub> as low as 0.21 wt % can significantly hamper the reaction rate. The apparent activation energy increased with the water concentration, but the frequency factor was more severely affected and decreased by an order of magnitude when the water concentration was doubled. With increasing water content, the chain growth mechanism shifted from competition between the direct insertion of TRI with formaldehyde incorporation, to reaction of TRI with water to form methylene glycols units which were inserted in the OME chain. The competition between water and the reactants for binding to the active sites of the zeolite was studied by means of modulated excitation attenuated total reflection infrared (ME-ATR-IR) spectroscopy experiments. It demonstrated a competition for silanol sites and Brønsted acid sites (BAS) according to the binding affinity order: OME<sub>1</sub> > H<sub>2</sub>O > TRI. This trend was confirmed by a DFT study of the interaction of OME<sub>1</sub>, TRI and H<sub>2</sub>O with BAS. Combined together, these results indicated that the presence of water inhibited the adsorption of TRI on the binding sites, which prevented OME growth. Hence, even very low levels of water must be controlled for an efficient catalytic process.


**KEYWORDS:** Polyoxymethylene dimethyl ethers, zeolite, water, modulation excitation spectroscopy, attenuated total reflection infrared spectroscopy

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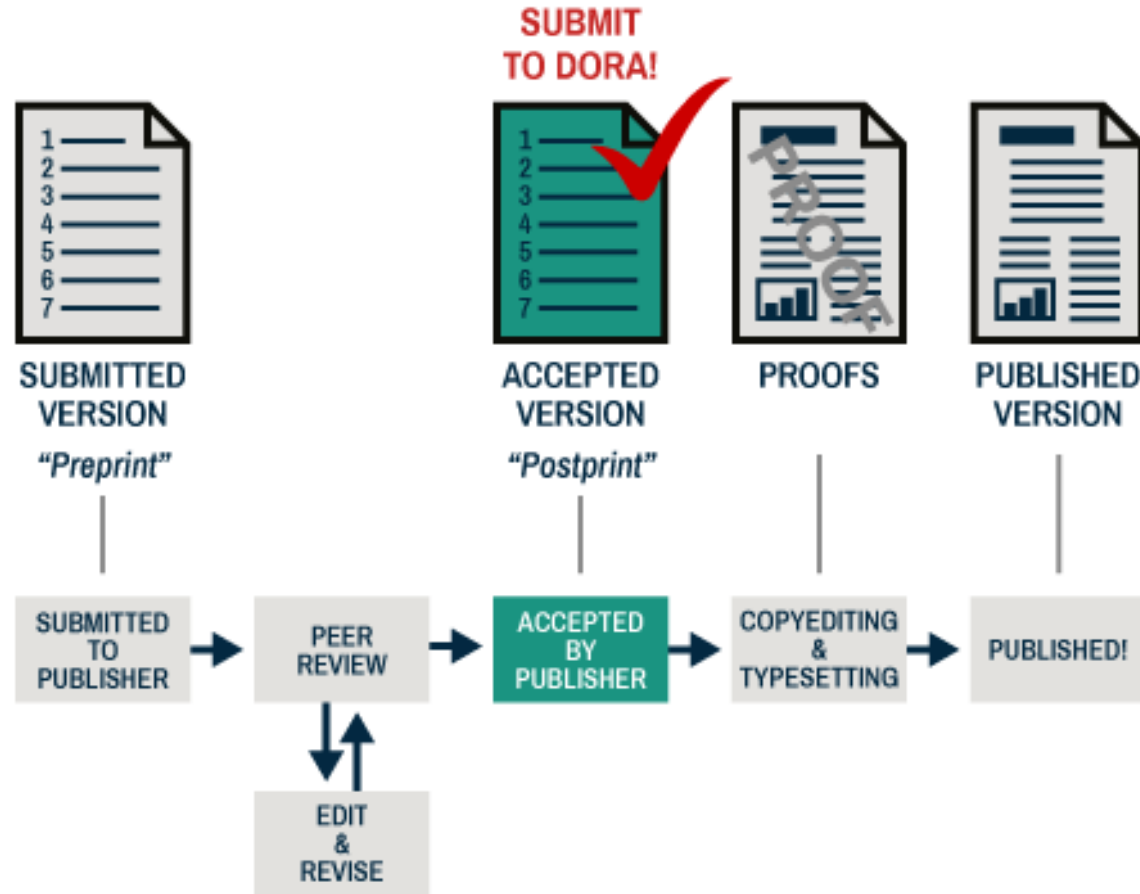
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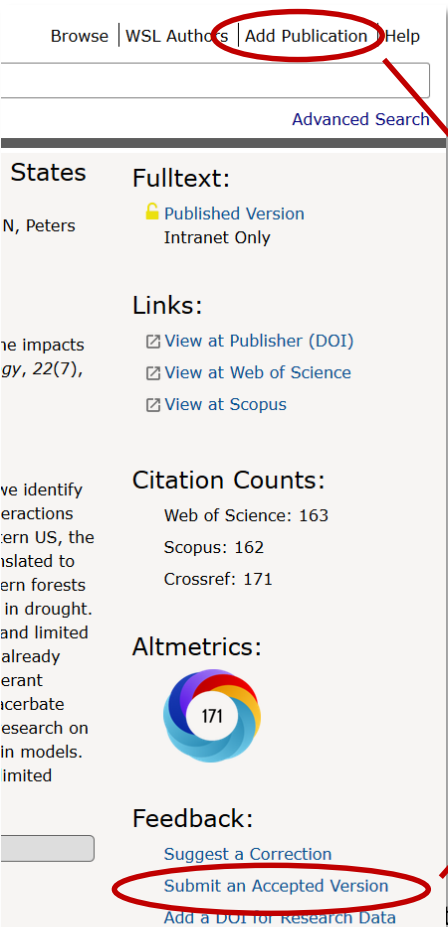
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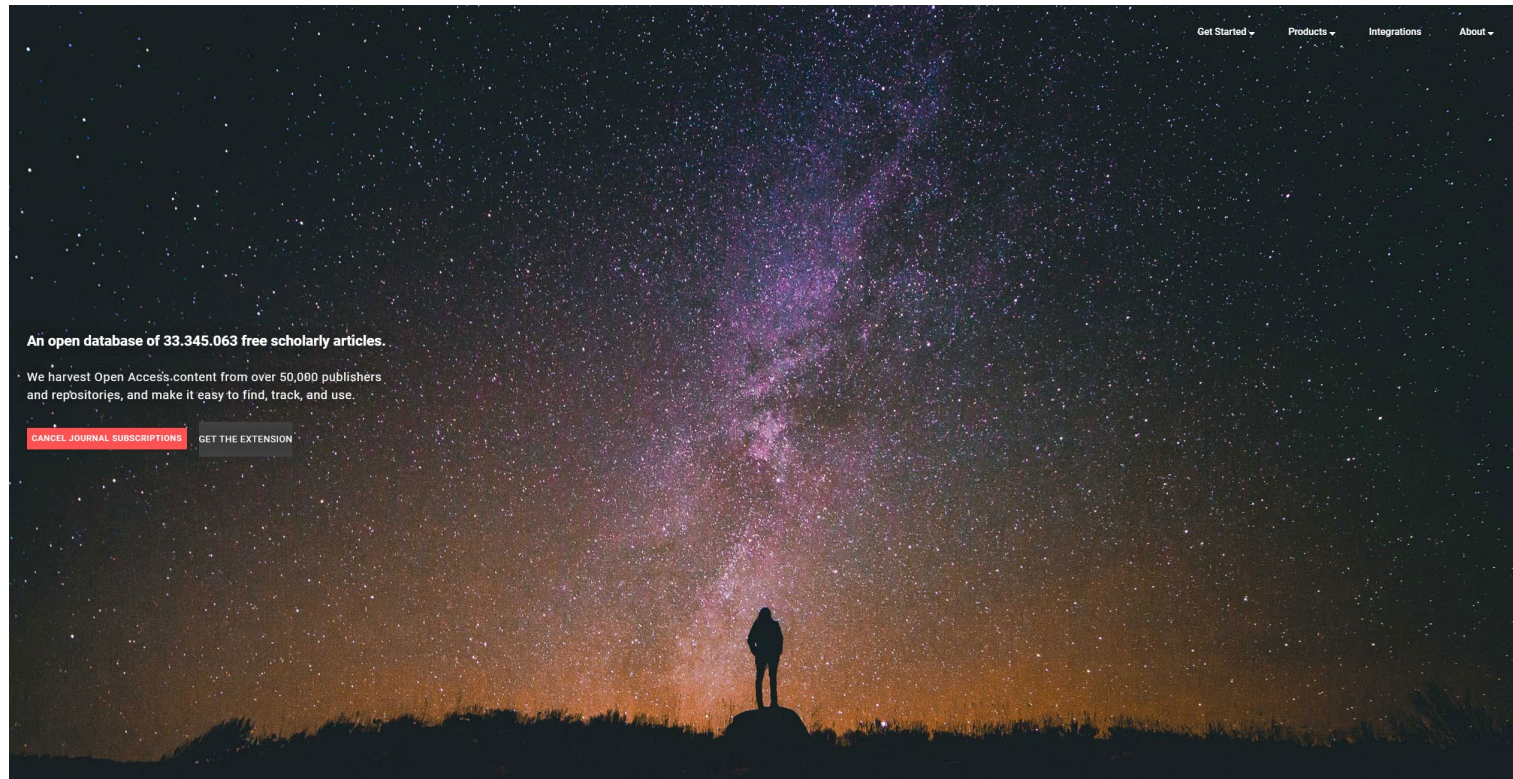
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  - 8.124 Environmental Sciences: 39
  - 5.30 Superconductor Science: 23
  - 2.41 Catalysts: 21
  - 2.62 Electrochemistry: 12
- Authors:**
  - Goldstein, J.: 71
  - Horisberger, R.: 71
  - Kleinwort, C.: 71
  - Adam, W.: 70
  - Andrea, J.: 70
- Results List:**
  - 1 Time Resolution of BC422 Plastic Scintillator Read Out by a SiPM** (9 References)
    - Stovkov, A and Bostomyan, T
    - Jul 2021 | IEEE TRANSACTIONS ON NUCLEAR SCIENCE 68 (7), pp.1487-1494
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  - 3 Metastability and Seeding Effects in the Mechanochemical Hybrid Lead(II) Iodide Formation** (58 References)
    - Wilke, M; Gavryluk, D and Casati, N
    - Apr 1 2021 | Mar 2021 (Early Access) | CHEMISTRY-A EUROPEAN JOURNAL 27 (19), pp.5944-5955

# The State of Open Access

## Swiss National Strategy on Open Access

### Preamble

In a [letter](#) dated 4 December 2015, the State Secretariat for Education, Research and Innovation (hereinafter SERI) commissioned swissuniversities to elaborate, with the support of the Swiss National Science Foundation (SNSF), a national strategy for Open Access to publications (hereinafter OA) to address the SERI-identified need for:

- Promotion of OA as an overriding principle
- Cost transparency for public funding
- Coordination among stakeholders

This national OA strategy was formulated and adopted by the plenary assembly of swissuniversities.

### 1. Why Open Access to publications?

Revolutionary developments in information science and scientific culture characterised by its open access to resources and disseminate results<sup>1</sup> is a consequence of the opening up of science and research.

This approach has been adopted worldwide, reflecting the fact that publicly funded research results are a public good which can only be fully exploited if everyone has free access without any restrictions.

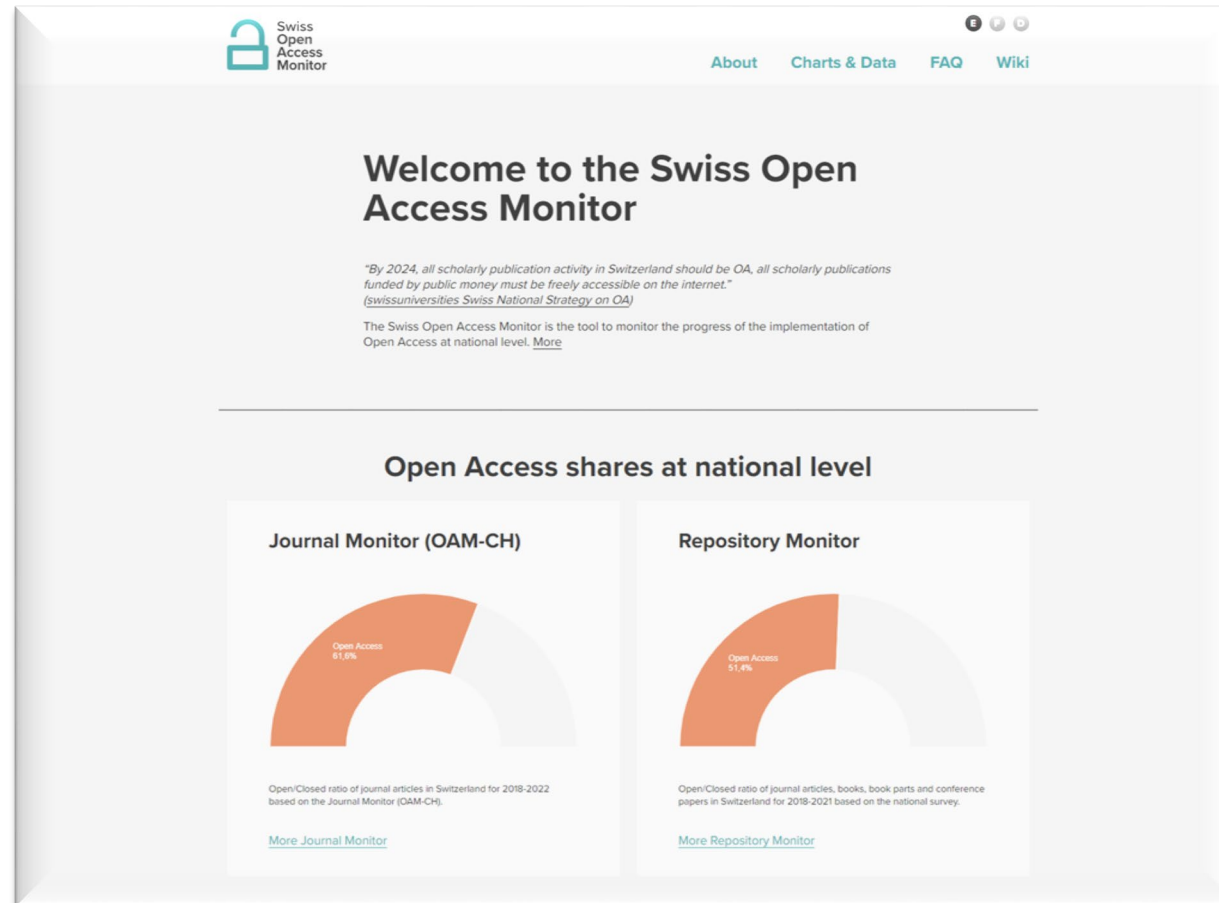
OA initiatives started mainly as a reaction of scientific communities to the unsustainable and cost-increasing developments in the scientific publishing landscape. Over the last few decades, subscription costs have soared and profit-oriented publishing houses have played a dominant role in the publication and dissemination of scientific works<sup>2</sup>. Their position is based on the fact that researchers appreciate their content, work for them as authors, reviewers and editors and often feel obliged to publish their works with them - all based on the current evaluation and reputation mechanisms - in order to maintain optimal career chances. As a consequence, most of the publicly funded research is locked behind a paywall.

All over the world, OA initiatives offer a chance of providing broad-based open access to research results, bringing research back to the scientists and to the public that funds it. They also represent an opportunity to point out flaws and consequences of the current evaluation and reputation mechanisms in science. Research funding

## 4. Vision

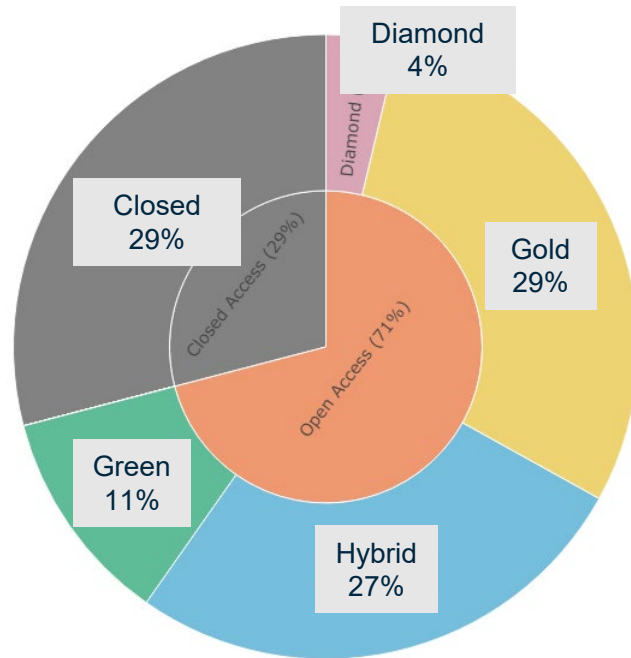
Taking account of the principles expressed above, the Swiss National Strategy on OA aims to achieve the following objective, in accordance with international benchmarks: **by 2024, all scholarly publication activity in Switzerland should be OA**, all scholarly publications funded by public money must be freely accessible on the internet. The OA landscape will consist of a mix of OA models.

# Swiss Open Access Monitor

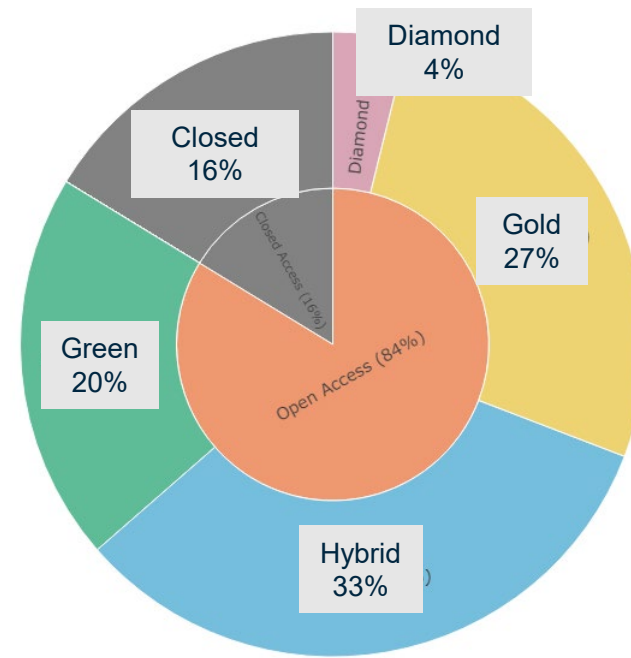


# Journal Articles 2021-2023

Switzerland



Eawag, Empa, PSI & WSL



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Journal Articles in 2023	480	769	1 296	770	3 315
Open Access	428 89.2%	636 82.7%	1 083 83.6%	667 86.6%	2 814 84.9%
With embargo	29 6.0%	68 8.8%	83 6.4%	45 5.8%	225 6.8%
Restricted	23 4.8%	65 8.5%	130 10.0%	58 7.5%	276 8.3%

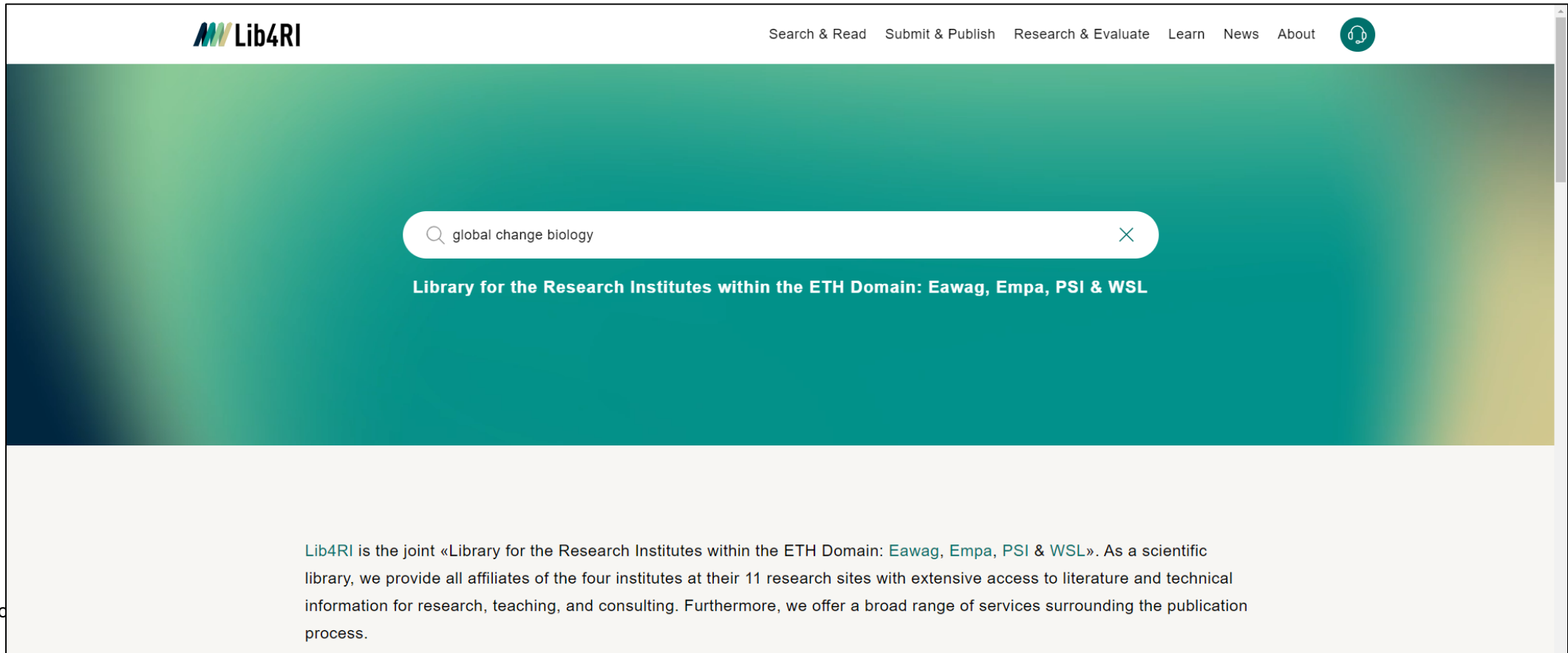
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Scopus

- Kumar N et al. Reverse engineering morphogenesis through Bayesian optimization of physics-based models. *Npj Systems Biology and Applications* 2024. <https://doi.org/10.1038/s41540-024-00375-z>.
- Serra Moncadas L et al. Freshwater genome-reduced bacteria exhibit pervasive episodes of adaptive stasis. *Nature Communications* 2024. <https://doi.org/10.1038/s41467-024-47767-7>.
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Books etc.

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- Chen H et al. *Methane emissions from unique wetlands in China : case studies, meta analyses, and modelling*. Walter de Gruyter GmbH & Co. KG, in collaboration with Higher Education Press; 2015.
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Institutional repositories

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- Jansen MA et al. of UV radiatio Protocol. *Glob* 0.1111/gcb.17
- Jansen MA et al. context of UV Montreal Prot Assessment F *Photobiologic* s43630-024-0
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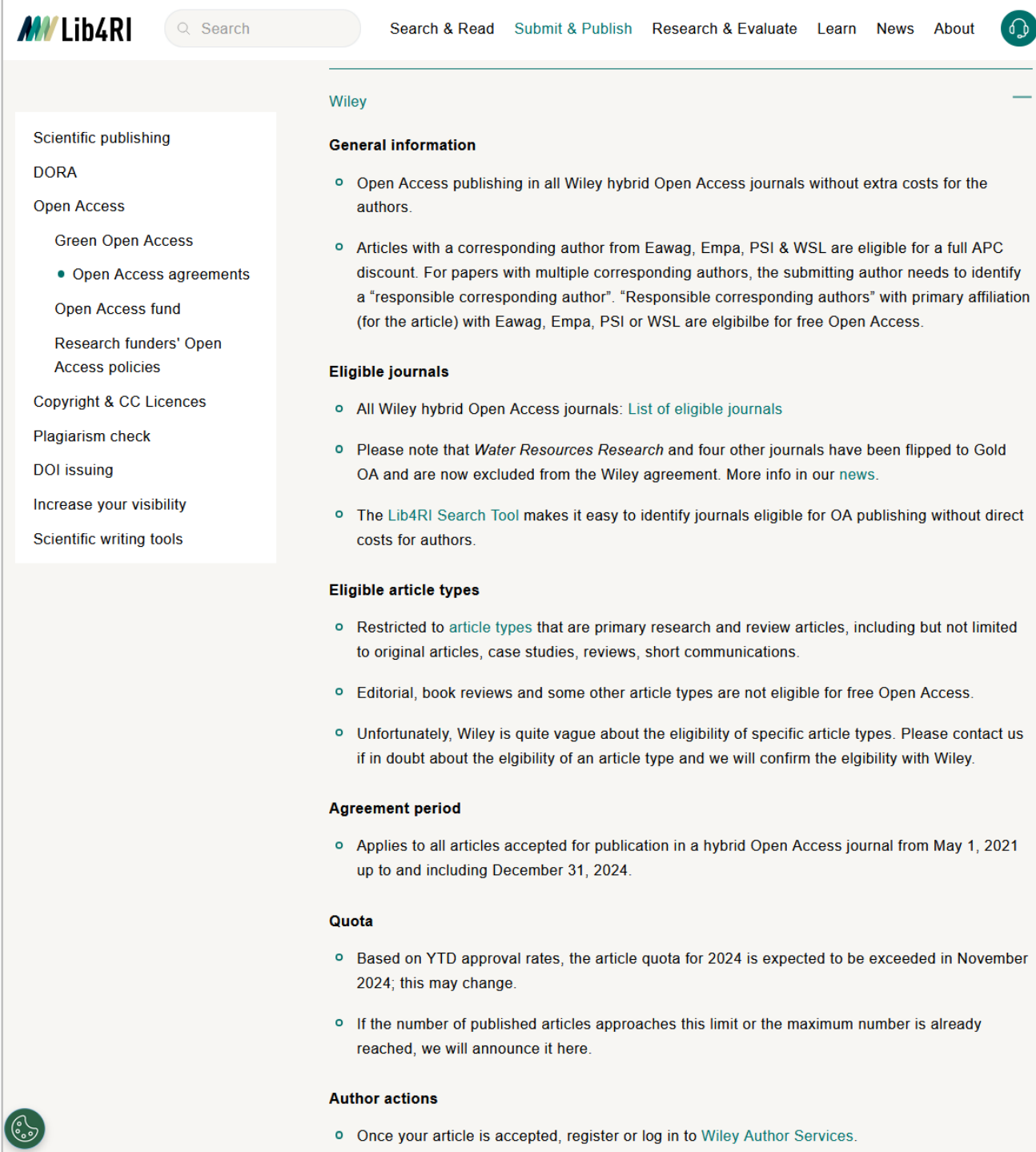
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