



# OPEN ACCESS AND THE PUBLISHING LANDSCAPE IN ASTRONOMY

EAS Session: The Changing Scientific Publishing Paradigm (LS8)



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**Background** — Work culture in astronomy



**Open Access (OA)** — What and why?



**Institutional View** — The Colors of OA Publishing



**Researchers' View** — OA considerations for authors



**The Larger View** — OA in context

# WORK CULTURE IN ASTRONOMY



Observatories typically in **remote places**



Community (researchers and librarians)  
**closely connected**



Tradition of **sharing and exchange**  
(papers, data, code...)

# CORE JOURNALS



Four journals > 35% of refereed astronomy literature



Governed by **Learned Societies**, published by commercial publishers

- American Astronomical Society (AAS) / IOP Publishing
- Royal Astronomical Society (RAS) / Oxford Univ. Press
- European Southern Observatory (ESO) / EDP Sciences

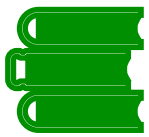


**Community of researchers** strongly influences publishing developments

# READ ACCESS



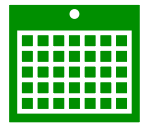
Wide-spread use of **Green OA** (arXiv/astro-ph)



Core journals digitised and **freely available**  
back to vol. 1



Publishers provide **temporary access** to  
selected recent articles



Access to core journal content often **one year**  
after **publication**

# OPEN ACCESS - WHAT AND WHY?

## Definition

Open Access is the **free, immediate, online availability** of research articles coupled with the **rights to use** these articles fully in the digital environment.

SPARC

(the Scholarly Publishing and Academic Resources Coalition)

<https://sparcopen.org/open-access/>



Typically: Publisher

## Motivations

Make publicly funded research available to all: **knowledge exchange**

Reduce expenditure for journal subscriptions: **cost transparency**

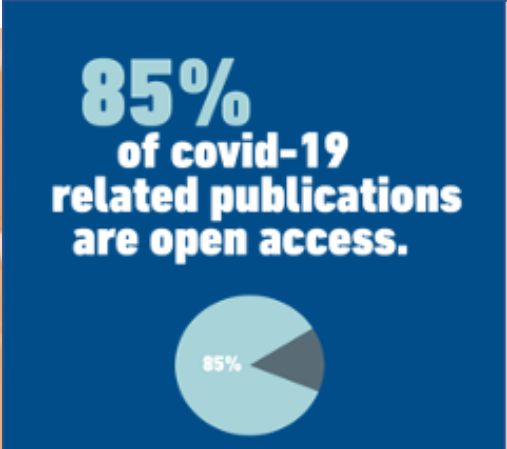
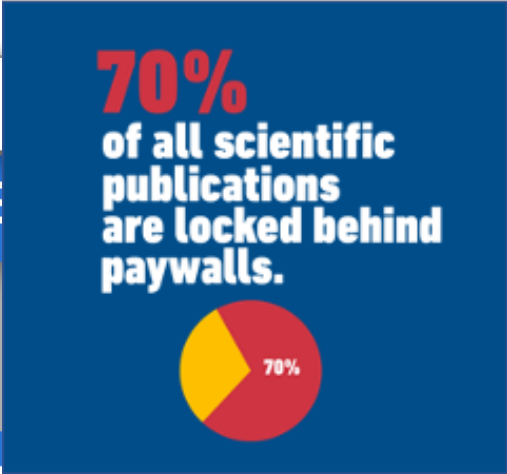
# BENEFITS OF OPEN ACCESS



CC-BY Danny Kingsley & Sarah Brown

Diagram from [https://commons.wikimedia.org/wiki/File:Benefitsofopenaccess\\_cc-by\\_logo.pd\\_eng.jpg](https://commons.wikimedia.org/wiki/File:Benefitsofopenaccess_cc-by_logo.pd_eng.jpg), D. Kingsley & S. Brown, CC-BY 4.0

# BENEFITS OF OPEN ACCESS (CONTD.)



Source: UNESCO

<https://en.unesco.org/covid19/communicationinformationresponse/opensolutions>



## Early adopters, OA advocates

- Researchers (Peter Suber (Harvard); Paul Ginsparg, arXiv)
- Organisations (e.g., CERN)
- Librarians & their institutions

## Funders

- Since 2018: Plan S (c**OA**lition S)
- Consortium led by European Commission (EC) and European Research Council (ERC)
- National, international, charitable funders, e.g., Wellcome and Bill & Melinda Gates Foundation
- Plan S - solution, shock, shift....
- Mandatory OA: *“Making full and immediate Open Access a reality”*



# PLAN S PRINCIPLES

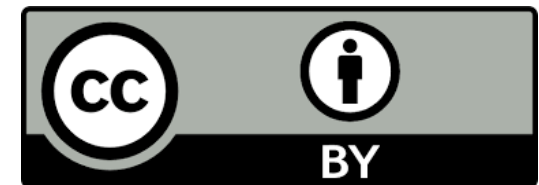
[https://www.coalition-s.org/plan\\_s\\_principles/](https://www.coalition-s.org/plan_s_principles/)



- |                      |  |
|----------------------|--|
| 01 CC-BY             | 06 Aligned policies                            |
| 02 Quality of OA     | 07 All scholarly publications                  |
| 03 Incentives for OA | 08 Open archives and repositories              |
| 04 OA Funds          | 09 No hybrid                                   |
| 05 Capped fees       | 10 Monitor compliance, sanction non-compliance |

## 01 CC-BY

- Authors retain copyright of their publications
- Open license mandatory, preferably Creative Commons Attribution License (CC-BY)



*arXiv/astro-ph: typically non-exclusive right to distribute articles, not CC-BY*



## 02 Quality of OA

- Funders will ensure jointly establishment of robust quality criteria
- cOAlition S will work with Directory of Open Access Journals (DOAJ) and the Directory of Open Access Repositories (OpenDOAR) to identify compliant journals + repositories

*Attempt to avoid predatory / deceptive journals*

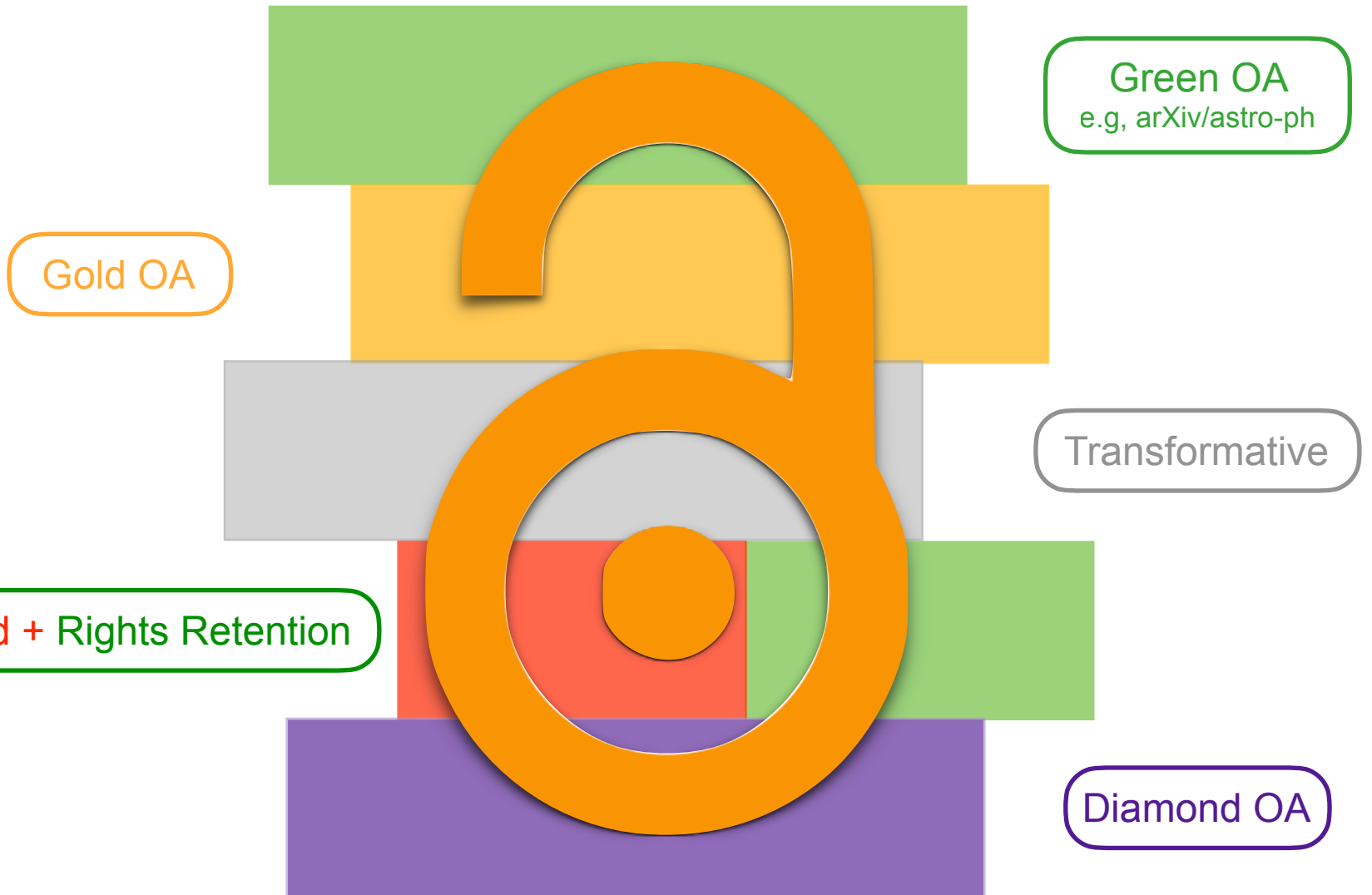
Plan S effective as of **2021**  
Transition until end of **2024**

## 03 Incentives for OA

- Funding of high-quality OA journals/platforms, if not yet existing
- Provide incentives to establish and support them

*New journals/platforms —> no reputation yet —> new evaluation system*  
*Article-level metrics will become more important.*  
*Career merit for authors / referees of OA journals.*

# THE COLORS OF OPEN ACCESS



# FROM “READERS PAY” TO “AUTHORS PAY”

## APCs (Article Processing Charges)

Gold OA

- Typically paid by **authors directly** —> disruptive process
- Often high costs; not equitable. Any **savings**?
- Institutional publishing budget existing / sufficient?
- New infrastructure needed: how to distribute funds? (**ethical questions**)
- APC waiver policies: problematic (paternalistic); often not clear

Authors: \$\$\$

## Overlay Journals

Gold OA

- Existing **eprint infrastructure** (e.g., arXiv) plus **refereeing** system
- Initiatives run by volunteers (researchers), based on grants (foundations) —> **sustainable**?
- Publishing costs: depend on journal; **lower than commercial** Gold OA
- Danger of losing publishers’ expertise?
- Example: *The Open Journal of Astrophysics* (<https://astro.theoj.org/>)

Authors: if any, low (\$)

- Publish-and-Read (PAR) / Read-and-Publish (RAP)
- Agreements between research org./consortia/countries + publishers
- Costs based on **subscription price + number of papers** per institute
- Typically provide **access to publisher's open and closed content** + OA publishing
- Allocated publishing budget often capped; further costs once used?  
(German "DEAL" consortium: *Nature* EUR 9,500/article = approx. INR 800,000 )
- How about small organizations / libraries w/o need for entire portfolio?
- Max. 3 years, then what?
- Results in **yet another dependency!** ("Big Deal")

Authors: ? (possibly \$\$\$)    Research organizations, Consortia: \$\$ - \$\$\$

# RIGHTS RETENTION

## Closed access (traditional subscription) + manuscript w/ CC-BY license

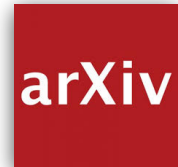
- **cOAlition S**-funded authors can place CC BY license on **author accepted manuscripts (AAM)**, i.e., w/o final typesetting
- Applied e.g. by AAAS (Science)
- Results in **two parallel versions**

Closed + Rights Retention

1



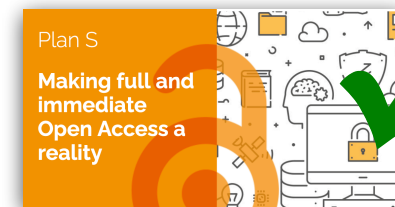
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Authors: n/a    Subscribers (libraries): \$\$ (no extra charge for manuscript w/ CC BY)

- Sponsoring Consortium for OA Publishing in Particle Physics
- **Partnership**: publishers and 3,000+ libraries, research centres, universities
- Initiated & led by CERN
- **Subscriptions funds redirected into common pool; central payment**
  
- 4 journals converted to OA, 2 others for HEP content
- Requires **complex high-level agreements** & thoughtful governance

Authors: n/a   Sponsoring organizations: \$\$



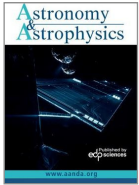
Diamond OA

- Continued (and new) **library subscriptions for universal OA**: all authors, all readers
- Aims at **transparent models w/o direct costs to readers or authors**
- Journals flip to OA only if (~95%) **threshold** of subscription is met
- Uses **existing infrastructure** (budget handling, licensing, etc.)
- Reflects **specific information needs** of specialised research community
- Typically no changes for authors —> **high acceptance expected**
- Example: Subscribe to Open (S2O)

Authors: n/a    Subscribers (libraries): \$\$ (possible discount)



## Astronomy & Astrophysics (A&A)

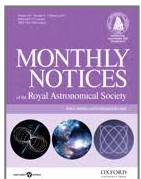


- Mostly **Diamond OA** model (slightly modified S2O)
- Implementation ideally as of 2022
  - **Reading:** continue with library subscriptions to achieve global read-access (if subscription threshold (~95%) is met).
  - **Publishing:** A&A Member States contributions to cover publishing costs for MS authors; moderate publishing fee for non-MS authors (EUR 100 / page)
- **No changes for majority of authors**
- No publishing charges if 1st author from A&A member state
- Further info:
  - <https://www.aanda.org/for-authors/author-information/open-access>



## AAS (ApJ / Suppl. / Letters, AJ)

- Full OA as of 2022
- **Gold OA** model
- Costs to be covered by authors (approx. USD 1,100 - 4,500)
- Access barrier shifted from reading to publishing
- Requires new infrastructure for those not used to page charges
- Further info: <https://journals.aas.org/oa/>



MNRAS: tbd

## Initial questions

- Grant holders: funder requirements?
- All researchers: requirements from your university / institute / organization?



## Where to publish?

- Usual quality and subject-related criteria
- Consult your **librarians** re. existing OA agreements
- Use tools such as the **DOAJ** (Directory of Open Access Journals, <https://doaj.org/>) and **OpenDOAR** (Directory of Open Access Repositories, <https://v2.sherpa.ac.uk/opensoar/>)
- Any **publication platforms** (repositories) set up by funder?



<https://open-research-europe.ec.europa.eu/>

## Rapid & Transparent Publishing

Fast publication and open peer review for research stemming from Horizon 2020 funding across all subject areas.

[SUBMIT YOUR RESEARCH](#)



- Publishing platform for scientific papers from EU's funding programmes
- Immediate open access, refereeing, re-usage rights, no costs to authors

## Check

- Avoid publishing in a “predatory” journal:  
Think-Check-Submit (<https://thinkchecksubmit.org/>)
- Funder compliancy: Plan S Journal Checker tool (<https://journalcheckertool.org>)



Choose the right journal or publisher for your research

### Is this compliant with Plan S ?

JOURNAL

Astronomy and Astrophysics (ED)

+

MY FUNDER

European Commission(Horizon I)

+

MY INSTITUTION

European Southern Observat

=

**Yes**, this combination is compliant.

What options do I have?

### What options do I have?

**SELF-ARCHIVING USING RIGHTS RETENTION**

You have the right to self-archive the author accepted manuscript should you choose. More information on how available [here](#).

START OVER

#### Compliant Routes

##### Self-archiving

You are able to comply with Plan S via Self-archiving.

The following checks were carried out to determine whether the right exists to comply with Plan S via self-archiving. Data from Open Access Button Permissions (OAB Permissions) is used to see if the publisher’s policy of self-archiving enables compliance. If it does not or if an unknown answer has been returned then data on cOAlition S Implementation Roadmap data is checked to see if cOAlition S’s Rights Retention Strategy provides a route to compliance :

- Check Open Access Button Permissions for journal
  - The journal is found by OAB Permissions
- Check if OAB Permissions says the journal allows archiving
  - OAB Permissions confirms the journal allows archiving
- Check if postprint or publisher PDF can be archived
  - Postprint can be archived
- Check there is no embargo period
  - There is no embargo period
- Check there is a suitable licence

START OVER

EXPLAIN THIS RESULT

Currently BETA version

## Costs

- Find out publishing fees (APCs, page charges, publishing fees)
- Check local funding sources (grants, university budgets, library funds, etc.)
- Check possible waiver policies

## Shape the development of scientific publishing

- Team up with your local librarians, administrators, other researchers to define best way forward
- Reach out to publishers to let them know your view



Image credit: Pixabay

## OA movement has already affected scholarly communication

- **Effect 1:** Toll access barriers for reading is (slowly) removed
- **Effect 2:** Insecurities and questions, e.g.
  - Who pays for publishing? How much? Future of journals? Academic freedom?
- **Effect 3:** How will scholarly publishing look in 5 years?



## Paradigm shift towards Open Science

- Open Access, Open Source, Open Data, Open Reviews, etc.
- FAIR principles: **F**indable - **A**ccessible - **I**nteroperable - **R**eusable  
(<https://www.go-fair.org/fair-principles/>)
- Active support of Open Science activities
- Evaluation processes should be transparent, robust, diverse.  
See DORA - Declaration of Research Assessment (<https://sfdora.org>)



**Publishing: Unique moment in time. Let's use it**

by implementing **collaborative, equitable, transparent Open Access**