



# WORK CULTURE IN ASTRONOMY



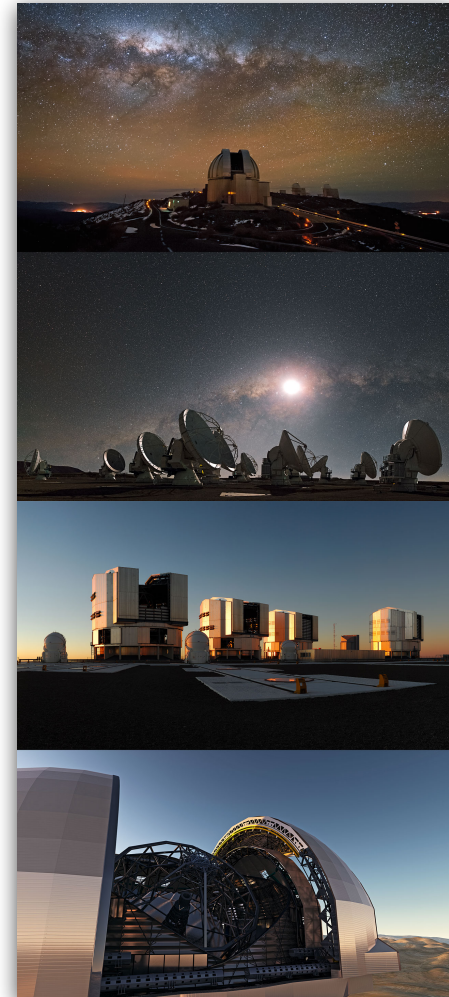
Observatories typically in **remote places**



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

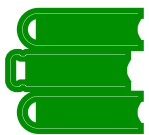


Tradition of **sharing and exchange**  
(papers, data, code...)





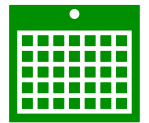
Wide-spread use of **Green OA** (arXiv/astro-ph eprint server)



Core journals digitised and **freely available back to vol. 1** —> entire Archive available



[Pre-2022] Publishers traditionally provided **temporary access** to selected recent articles



[Pre-2022] Free access to new core journal content often **one year after publication**





## Four “essential” journals

- > 35% of refereed astronomy literature
- ESO + IAC:
  - 80+% 1st-author papers in core journals
  - 60+% in A&A or MNRAS



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

Pre-2022:

- **ApJ / AJ:** AAS + IOP Publishing  
Subscriptions + (moderate) page charges
- **A&A:** A&A Board of Directors (Member Country community) + EDP Sciences  
Subscriptions; no page charges for authors from A&A Member Countries

Pre-2024:

- **MNRAS:** RAS + Oxford Univ. Press  
Financed only through subscriptions, no page charges



## Community of researchers

- strongly influences publishing developments
- is used to publishing with **minimal researcher burden** (esp. in Europe)

# IN THE MEANTIME, OUTSIDE OF ASTRONOMY...

## Background & Motivation

- Publishing landscape dominated by large commercial publishers
- In response: OA movement since the 1990s (internet-era)
- Make publicly funded research available to all → **knowledge exchange**
- Reduce expenditure for journal subscriptions → **cost transparency**
- EU/ERC's Plan S (2018) gave a huge push (S = Shock?)

## Open Access Publishing — 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.

Reside with authors instead of with publishers (CC-BY)



## Initial effects

Unintended side-effects, e.g.,

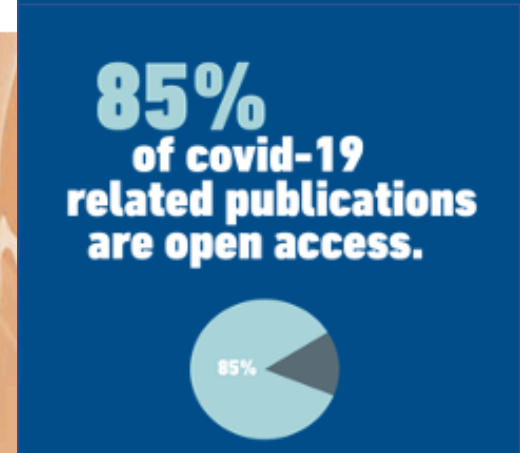
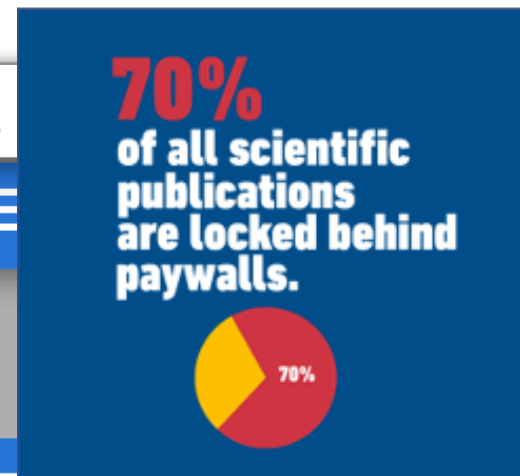
- Publishers: from **“readers pay”** (subscriptions) to **“authors pay”** (article fees)
- “Predatory” journals: lack of quality control → bad reputation of OA

# 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



Source: UNESCO

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

# OPEN ACCESS IN ASTRONOMY



OA as of 2024

OA as of 2022



## ApJ / AJ

- **APC-based (Gold)** OA model as of **2022**
- APC = Article Processing Charges, paid by authors
- APC prices depend on journal and article length; EUR 1,100 - 4,300
- Waiver policy (“Publication Support”): <https://journals.aas.org/waivers/>
- **Increased costs** for authors in comparison with page charges

## MNRAS

- **APC-based (Gold)** OA model as of **2024**
- APCs for MNRAS / Letters EUR 2,600 (discount for RAS members)
- Waiver policy via <https://academic.oup.com/mnras/pages/mnras-open-access>
- **Newly introduced costs** for authors (previously: subscriptions)



## Costs of APC-based models

- Total annual costs difficult to predict
- APCs **not compensated by savings** from subscription costs
- 2022: ~30% IAC / ESO papers in MNRAS
- (Vastly) increased costs to be expected?

## Librarian's View

- **Access barrier shifted** from reading to publishing
- “Authors pay” model **not equitable** (favours rich, established institutions)
- Waivers, although well-intended, are still **patronising**
- **Disruptive for authors** who are not used to page charges
- Requires new institutional infrastructure, in particular
  - **budget for publication costs** (where? Admin, Library, ...?) and
  - **guidelines** how to spend (first come, first serve??)



## A&A

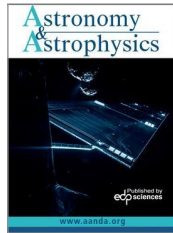
- **Collaborative (Diamond)** OA model as of 2022
- Librarians, publishers, research community work together
- Slightly modified **Subscribe to Open (S2O)** approach
  - Continue with library subscriptions to achieve **global read-access**
  - A&A Member Countries' contributions cover editorial costs for MC authors
  - Moderate page charges for non-MC authors
- In practice no change for authors

## Costs

- As before; possible savings for “Early Bird” subscription renewals

## Librarian's View

- A move in the right direction: **collaborative, cost neutral, mostly equitable**
- Transparent & predictable; uses **existing infrastructure** (budget handling)
- Workflow unchanged, but global OA achieved; **high acceptance expected**





## Read & Publish Agreements

- **High-level agreements** between research organisations / countries + publishers
- Complex cost calculation: Subscription + number of published papers (APCs)
- Usually includes access to publisher's closed as well as OA content
- **Number of articles typically capped**; high costs for additional papers (e.g., *Nature* EUR 9,500)
- Often higher costs for participating institutions + **dependency on for-profit publishers**



## Overlay Journals

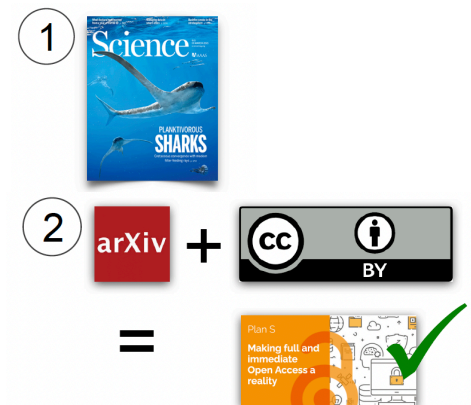


- “Gold (APC-based) OA”, but **low (or no) publishing costs**
- Existing eprint infrastructure (e.g., arXiv) plus refereeing system
- Initiatives run by volunteers (researchers), based on grants (foundations) → instability?  
Example: *The Open Journal of Astrophysics* (<https://astro.theoj.org/>)

## Subscription + Rights Retention



- Publication in closed (subscription) journal
- Funders' requirement: **open license** (e.g., CC-BY)
- **Peer-reviewed manuscripts** (Author-Accepted Manuscripts, **AAM**) with CC-BY sent to repository
- Results in **2 parallel versions** of peer-reviewed paper
- Changes the “FAIRness” of manuscripts, not of journals



# CULTURE CHANGE

Are astronomers convinced about benefits of (full) OA?

African proverb:



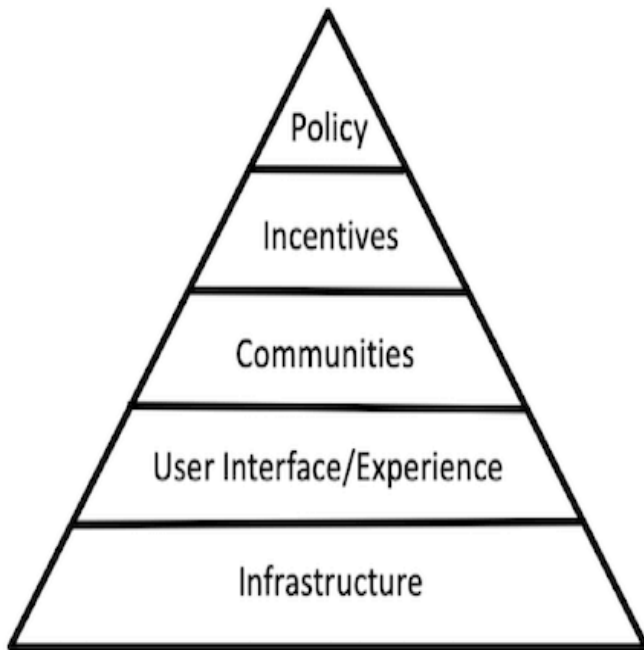
*If you want to go fast, walk alone.*

*However, if you want to go far, go together.*

Astronomy is an integral part of science. General science standards (about Open Access, Open Science etc.) should be applied.

**Researchers and librarians** (and funders, organisations, publishers) **together** can shape a **better publishing landscape**

## How are we doing in **astronomy** (core journals)?



Make it required



Depends... (national or research org. policy in place?)

Make it rewarding



Research evaluation system needs to be amended (CoARA<sup>1</sup>, DORA<sup>2</sup>, etc.)

Make it normative



Manuscript posting on astro-ph (semi-)normative; full OA not yet

Make it easy



“Easy” only if authors have publishing funds or no APCs/page charges apply

Make it possible



OA publishing of core journals

Image credit: June 11th, 2019, [Brian Nosek](https://www.cos.io/)  
 Exec. Director, Center for Open Science (COS),  
 Charlottesville, VA, USA, <https://www.cos.io/>

<sup>1</sup> CoARA: Coalition for Advancing Research Assessment (<https://coara.eu/>)

<sup>2</sup> DORA: San Francisco Declaration on Research Assessment (<https://sfдора.org/>)

Mandatory OA publishing since 2011 (Ley de la ciencia, Art. 37), revised in 2022

- ➔ copy of the **final version accepted for publication** and the **associated data** must be deposited in an open access repository
- ➔ authors have to **retain usage rights** (e.g., through CC-BY)

Support to publish OA

- ➔ publication fees reimbursable with some Spanish grants

Europe/ERC level: mandatory OA publishing

Horizon 2020:

- ➔ copy of the **published version or the final peer-reviewed manuscript** accepted for publication at the latest - in a trusted repository for scientific publications
- ➔ no mentioning of open licenses

Horizon Europe:

- ➔ copy of the **published version or the final peer-reviewed manuscript** and the **associated data** accepted for publication at the latest - in a trusted repository for scientific publications
- ➔ further Open Science **requirements**
- ➔ use of **open licenses (CC-BY) mandatory**

Support to publish OA

- ➔ Horizon 2020: all open access publication fees reimbursable
- ➔ Horizon Europe: publication fees reimbursable only if publishing venue offers **full OA** (publication fees in **hybrid journals not reimbursed**)



# THE ROLE OF LIBRARIANS

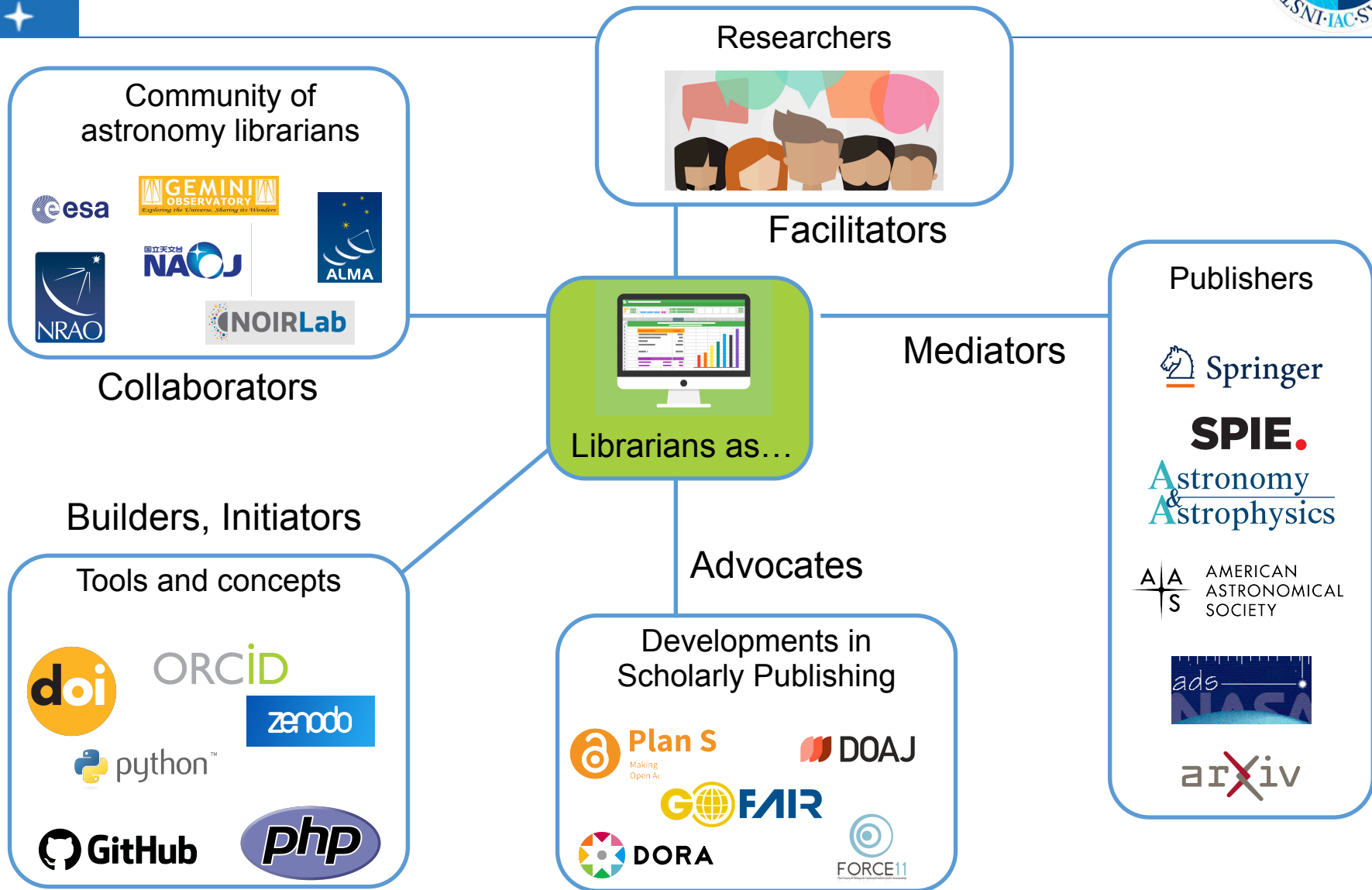
 What do we librarians have to do with Open Access publishing?

 We are involved because we:

- ✓ **monitor** new models to subscribe to journals or to acquire books
- ✓ **assess** our community's needs re. OA publishing
- ✓ **inform** researchers about ongoing changes
- ✓ **provide help** to authors about OA options when submitting an article
- ✓ **collect metrics** about OA status of publications where our authors publish for funding agencies, institutional reports, etc.
- ✓ **be aware of changes** in national and European regulations about OA publishing (research supported by public funding)
- ✓ **continue to observe** developments and trends



# LIBRARIANS: OA ENABLERS



# WHERE ARE WE GOING?

## There is no one-fits-all OA solution

- **Large mix of models** during coming years
- Authors should know pros and cons of the various models
- **Librarians are here to help** and explain

**Thank you!**  
**Any questions?**

## Reduce / stabilise costs

- Keep costs stable is a **main driver of OA** movement
- Move to OA must be **cost neutral**; already (too) much money in the publishing system
- **Avoid dependancy** on (high-price commercial) publishers (Big Deals!)

## Open Access is a paradigm shift. We must get it right!

- Already **too many unintended side-effects** (e.g., continued injustice of favouring authors from Global North, dependency on for-profit commercial publishers)
- **Better OA models than APCs are on the rise**, but still need more attention
- **Authors** make **strategic choices** when publishing
- **Let's strive together** for **collaborative, equitable, transparent, sustainable** OA models