Round-Table Session

Open Access (OA) in Chemistry

- **Dr. Adeline Rege** University Library of Strasbourg
- **Mrs Jehanne Ducros-Delaigue** University library of Mulhouse.
- **Dr. Sylvain Ribault** Institut de Physique Théorique , CEA-CNRS UMR 3681, Saclay
- **Dr. Frédéric Hélein**, Université Paris Diderot, UFR de Mathématiques et Institut de Mathématiques de Jussieu - UMR 7586

Why is “open access science” on the agenda of the conference ?

- Academic journals in chemistry: main tool of research dissemination
- Main financial model: journal subscription fees
- Controversial model: 1/ Escalating subscription costs and 2/ Failure to achieve universal access.
- Global response of academy: Launch of an Open-Access science initiative “*to make scholarly articles but also research data freely and immediately available to everyone*”
- **Good intentions have faced reality**: article processing costs (APC), shortage of credible OA journals, lack of guidance, journals = determinants of academic careers.

Objectives

- To provide our polymer community with means for a practical implementation of OA

① VISION of scholarly publishing in chemistry

Dr. Adeline Rege (University library of Strasbourg) and **Mrs. Jehanne Ducros-Delaigue** (University library of Mulhouse)

② RESOURCES of OA – Emphasis on Preprints

Dr. Sylvain Ribault, Institut de Physique Théorique, CEA-CNRS UMR 3681, Saclay

③ ACTIONS PLAN to shape the future of OA chemistry

Dr. Frédéric Hélein, Université Paris Diderot, Institut de Mathématiques de Jussieu, CNRS UMR 7586, Paris

Organization

- Three presentations: **Vision**, **Resources** and **Action Plan**
- Questions and comments from the public

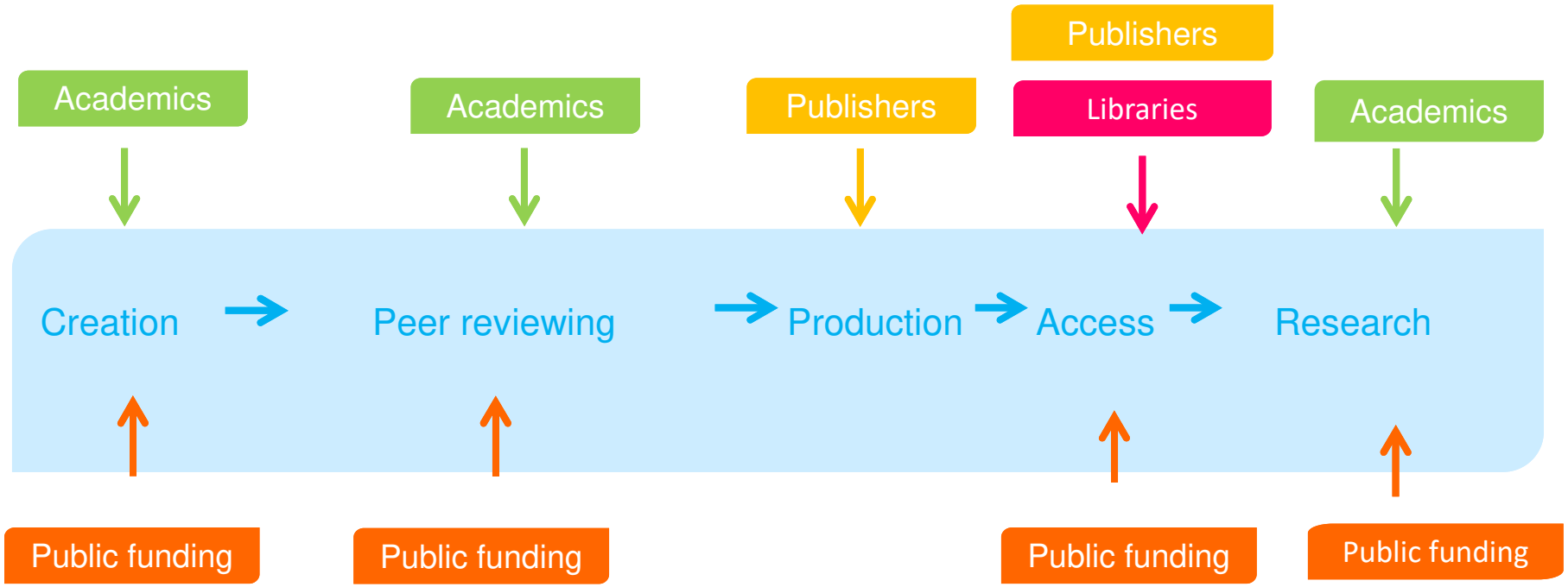
Scholarly publishing in chemistry: state of play

Groupe français des polymères
Mulhouse, November 28th 2019

Mrs. Jehanne Ducros-Delaigue, Head of Research Support,
Learning Center University of Haute-Alsace

Dr. Adeline Rege, Head of Scholarly Communications and
Research Support, Library Services, University of Strasbourg

Scholarly publishing : the business model



From : http://blogusoperandi.blogspot.fr/2009/08/crise-de-la-publication-scientifique.html

A highly concentrated market

Science, Technology, Medicine: 5 publishers are controlling the market (Elsevier, Springer Nature, Wiley, Informa (Taylor & Francis), ACS)

↳>50% of the publications
↳65% of the profits
↳2017 : 75% of the subscriptions revenue (See : EUA Report on Big Deals in 26 countries)
↳Profit margin (revenue – cost/revenue) : 36% in average (more than Google and Amazon)

The academic publishing crisis

Publish or perish :
More and more articles ⇨ more and more journals, more and more specialized : publishers lanch new journals every year
↳ Elsevier publishes more than 2 000 journals

The « big deal » business model : paying a flatrate for a journals package, with no possibility to pick and choose the most relevant journals for an institution

Rising subscription rates, despite tough negociations via library consortia :
American Chemical society (ACS) : +4% inflation/year (France)
American Physical Society (*APS*) : +4% inflation/year (France)
Royal Society of Chemistry (RSC) : +4,4% inflation/year (France)

Major publishers in chemistry

Commercial publishers:

- Elsevier (*Tetrahedron, Reaxys…*)
- Wiley (*Angewandte Chemie, ChemNanoMat, Advanced Materials, Chemistry… :* Wiley-VCH)

Learned societies:

- ACS (*JACS, OrgLet, SciFinder Scholar…)*
- RSC (*Nanoscale, ChemComm, Merck Index…)*

OA publishing in chemistry (1/2)

Journal	Publisher	Full OA/hybrid	APC (article processing charge)	Green OA policy
JACS	ACS	hybrid	4000$	Self-archiving not permitted unlesss institutonial policy
ACS Omega	ACS	Full OA	750$	No embargo
Nanoscale	RSC	Hybrid	2500£ (review)	Author accepted manuscript (AAM) with 12 month embargo
RSC Advances	RSC	Full OA	750£	No embargo
Tetrahedron	Elsevier	Hybrid	2450$	AAM with 24 month embargo
Angewandte Chemie	Wiley-VCH	Hybrid	4000€	AAM with 12 month embargo
PeerJ Chemistry	PeerJ	Full OA	Free. Lifetime Membership 400-500$	No embargo

OA publishing in chemistry (2/2)

Journal	Publisher	Full OA/hybrid	APC	Green OA policy
Nanotechnology	Beilstein	Full OA	0	No embargo
Frontiers in Materials	Frontiers	Full OA	0-2490$ depending on the paper	No embargo
Journal of Nanostructure in Chemistry	Springer	Full OA	0	No embargo
Express Polymer Letters	**Budapest Univ. Of Technology**	**Full OA**	**0**	**Unknown. No CC licence**
Polymers	**MDPI**	**Full OA**	**1500 CHF**	**No embargo**
Materials today Advances	**Elsevier**	**Full OA**	**3000$**	**No embargo**
Designed Monomers and Polymers	**Taylor & Francis**	**Full OA**	**1320€ (full length article)**	**No embargo**

Article Processing Charges : a new source of income for publishers, on top of subscriptions

Source : Open APC.

Publisher	APCs paid in 2017
Elsevier	10 423 731€
Springer Nature	9 216 186€
Wiley-Blackwell	4 292 090€
ACS	1 520 004€
Informa (T&F)	729 997€
RSC	653 044€

Where we are today : towards a shift to OA ? (1/2)

Self-archiving :

- 2014 : German law on *Zweitveröffentlichungsrecht*
- 2016 : French law for a digital republic : AAM self-archiving is permitted with a 6 months embargo, regardless of the publisher's policy
- More and more institutional und funders policies make self-archiving mandatory
- Self-archiving is a valid route towards Plan S compliance

Where we are today : towards a shift to OA ? (2/2)

Open Access publishing

- For the 2020 negociations, Couperin.org (french national consortium) requires both OA and cost decrease ⇨tough negociations going on with ACS, SpringerNature and Wiley
- OA 2020 : « there is already enough money in the system »
- New model agreements with publishers : read & publish (ex : Project DEAL Germany)
- Plan S (2021) : Association of STM publishers & ACS's response to Plan S : hybrid OA is a valid path to global OA

↳ With the APC model, will costs decrease ?

Focus on the Site Alsace open access policy

An institutional repository for research institutions in Alsace : univoak.eu

- A repository for publications from Unistra, UHA, INSA Strasbourg, BNU
- Connected with HAL (french national repository) : every publication deposited is automatically pushed to HAL
- Launched in 2016 with basic functionalities but under constant improvement
- 2020 : AAM deposit on univoak will be mandatory for Unistra researchers

A case study : redirect subscriptions money to fund open access initiatives

October 2018 : Unistra decided to cancel its big deal for Springer journals and to redirect the savings to fund open access initiatives

October 2018-May 2019 : Library Services selected open access initiatives based on the following criteria (Jussieu call for bibliodiversity) :

- Non APC model ;
- Transparency and sustainability of the business model ;
- High scientific quality;
- Governance based on academics

May 2019 : Selection was approved by University's Research Commission
↳Peer Community In, SciPost, OpenEdition Journals, Centre Mersenne, Open Library of Humanities, Knowledge Unlatched (IntechOpen), FOAA, COAR… :
ca. 38 000€

Preprints and other tools of open research

Sylvain Ribault
(Institut de Physique Théorique, CNRS & CEA Saclay)

- Contributor to GitHub, Wikipedia, StackExchange.
- Editorial board of the Wikijournal of Science.
- Blogger at "Research practices and tools"
  $\rightarrow$ extended version of this presentation.

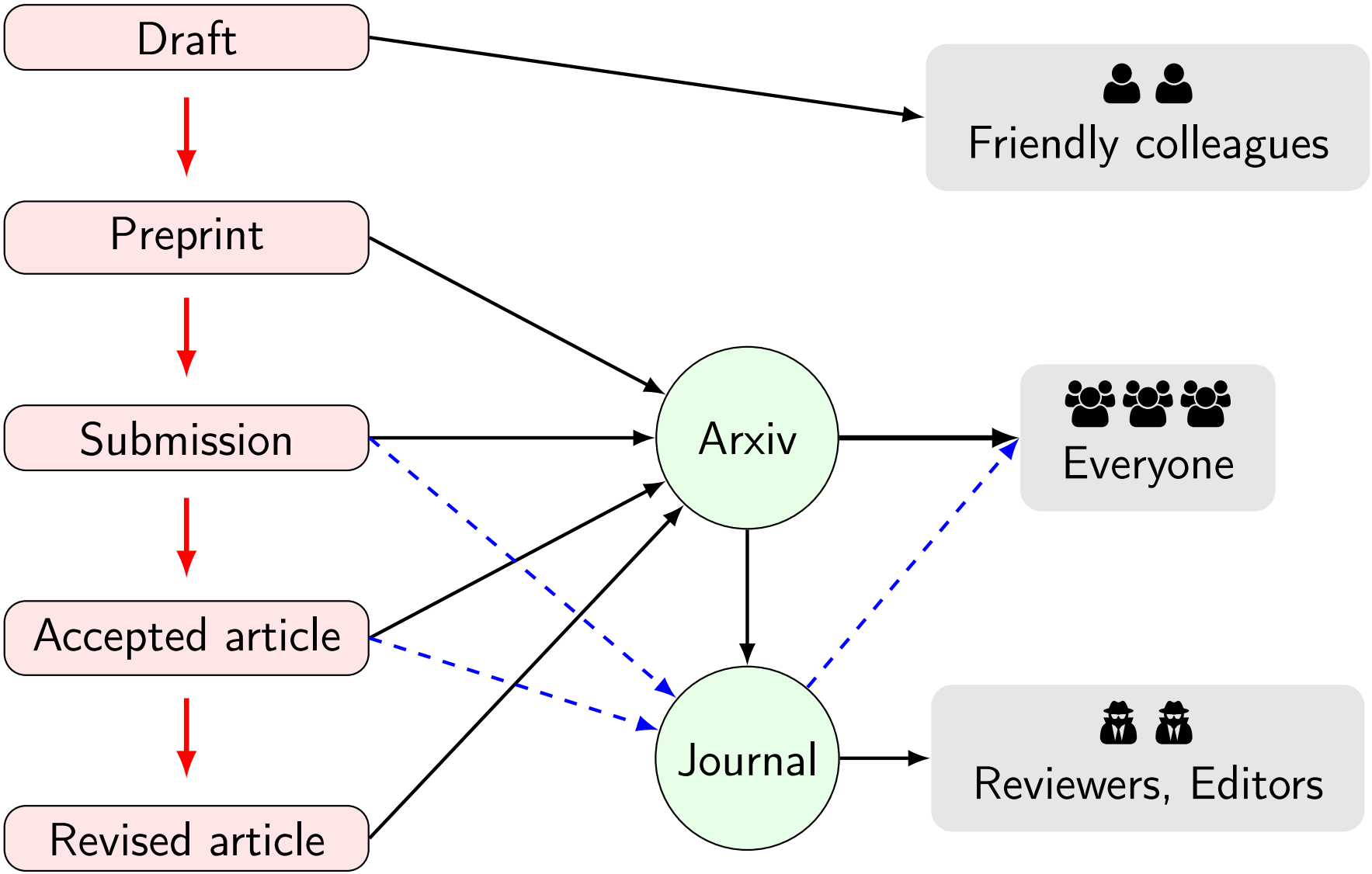
Preprint archives: administrative vs disciplinary

	Administrative archives	Disciplinary archives
Examples	HAL, UnivOAk	Arxiv, Chemrxiv
Main purpose	Fulfill OA mandate	Share papers **with colleagues**
Deposit time	**After** journal publication	**Before** journal publication
One feature	Manage embargos	List new preprints every day
Other feature	Export pub. list to CNRS	Allow submission to journals
Bonus feature	Share essays, comments, theses, lecture notes, etc	

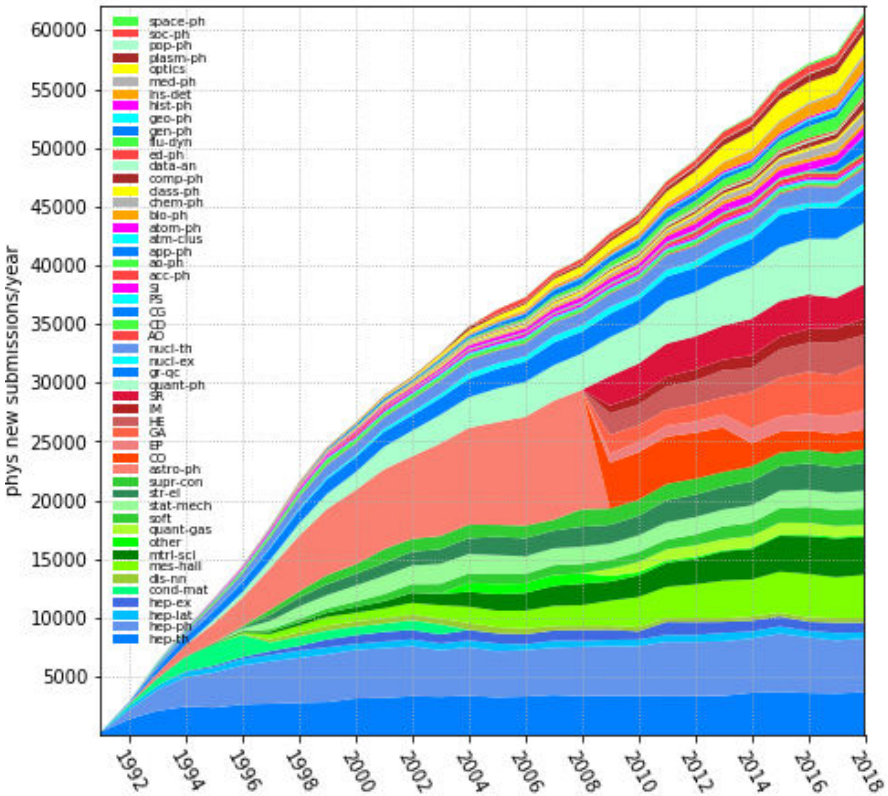
Three disciplinary archives

	Arxiv	Biorxiv	Chemrxiv
Disciplines	Math, Phys, CS	Biology	Chemistry
Since	1991	2013	2017
Preprints / month	13000	3000	250
$T_{\text{publish}} - T_{\text{submit}}$	1 day	2 days	1-2 days
Independent from publishers	✓	✓	✗
Reader comments	✗	✓	✗
DOIs	✗	✓	✓
Review articles	✓	✗	✗
Responses to article	✓	✗	✓
Non-English texts	✓	✗	✗

Life of a research article



Arxiv saturation and endgame



(Source: Arxiv submission rate statistics)

- In many subdisciplines, **all** papers are on Arxiv.
- Publication in journals becomes **optional**: *Perelman* was offered the 2006 Fields Medal for 3 Arxiv preprints, **informally** peer reviewed outside journals.
- Although not needed for **dissemination** and not much for **peer review**, journals survive as **career gatekeepers**.

Beyond open access: open peer review

Open peer review in a nutshell:

- Publish **reviewer reports** for accepted articles.
- Accept **spontaneous reviews**, not just invited reviews.
- Publish **reviewer names** although they may opt out.

Two successful multidisciplinary journal families that are now creating chemistry journals:

- **PeerJ Chemistry**: 5 new journals started 2018.
- **SciPost Chemistry**: coming soon.

Beyond research articles

Other media that matter:

- **Data** are more important than texts, according to chemist and blogger *Henry Rzepa*.
  → To be useful, data should be FAIR (Findable, Accessible, Inter-operable and Re-usable).
- **Code** can be written collaboratively at GitHub, GitLab.
- **StackExchange** for questions and answers.
- **Wikipedia** has many readers (600/day for Neoprene) but too few academic contributors.
  → For real impact, write in Wikipedia!

What solutions for a new and more accurate model of scientific publications in chemistry ?

Frédéric HÉLEIN

Professor, Université de Paris,
Scientific Director RNBM
Scientific and technical information correspondent for mathematics at the CNRS

GFP 2019 – Mulhouse — November 28, 2019

Preprint archives and open repositories again

Preprint archives function:

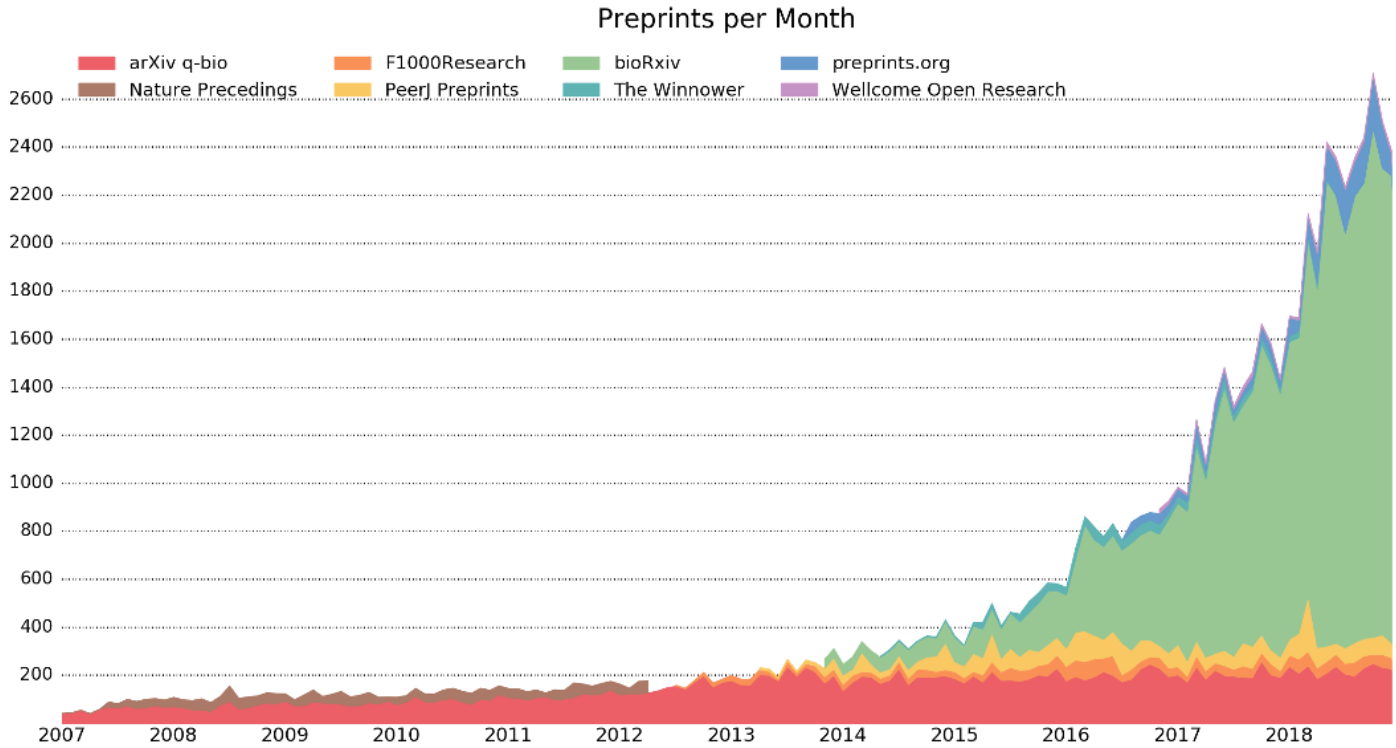
- ChemRxiv™: deposit a preprint to disseminate, *before submission* to a journal
- RePEc : show various preliminary versions to colleagues to collect feedback before submission (possible with ChemRxiv !)
- New with ChemRxiv™: the Author can **keep the copyright**!

But also: *Open repository function*...

- deposit a published article (or a compliant version):
  arXiv.org bioRxiv THE PREPRINT SERVER FOR BIOLOGY HAL archives-ouvertes.fr etc. COAR Confederation of Open Access Repositories
- for data: zenodo
- and much more...

Example in Biology

- 2012: DORA The San Francisco **Declaration On Research Assessment**: stop at the H-index, at the Impact factors! Improve the assessment, take preprints into accounts...
- 2013: the bioRχiv THE PREPRINT SERVER FOR BIOLOGY platform is launched.
- growing...



Source: http:\\www.prepubmed.org\monthly_stats\

Comparison between Biology and Chemistry

- bioRxiv's start-up is spectacular and seems to be faster than ChemRxiv's
- however two years after the birth of bioRxiv 'only' 3100 preprints had been deposited, whereas two years after the birth of ChemRxiv, 2400 preprints have been deposited on ChemRxiv: we have to wait to evaluate the development of ChemRxiv
- actually the community of biologists was very reluctant towards preprints in the beginning and promotional work was necessary (see e.g. The Case for Open Preprints in Biology

Other benefits of the preprint archives

- allows new publication models: épisciences.org
- allows new evaluation and assessment models: PCI peercommunityin.org
- allows new systems of alerts, comments preLights Preprint highlights, selected by the biological community
- even ! (particularly in biology)
- facilitates **text and data mining** (if CC Licences are used)
- reverses the balance of power with the publishers: SCOAP^3

Open Access journals without APCs

Institutional financing or crowdfunding

pour l'édition scientifique ouverte
for open scientific publishing

Open Access journals with fair APCs

- F1000Research Open for Science : APC = $ 150 to $ 2000
- Copernicus Publications The Innovative Open Access Publisher : APC = around 50 Euros / page
- PLOS ONE : No ! APC = $ 1500 to $ 3000 !

Conclusion

- **Not a single** accurate model, but several models together
- **Bibliodiversity** : 

- however preprint servers and open repositories should play a crucial role

A good news: the Comptes Rendus of the French Academy of Sciences

Évolution des modalités de consultation des Comptes Rendus de l'Académie des sciences

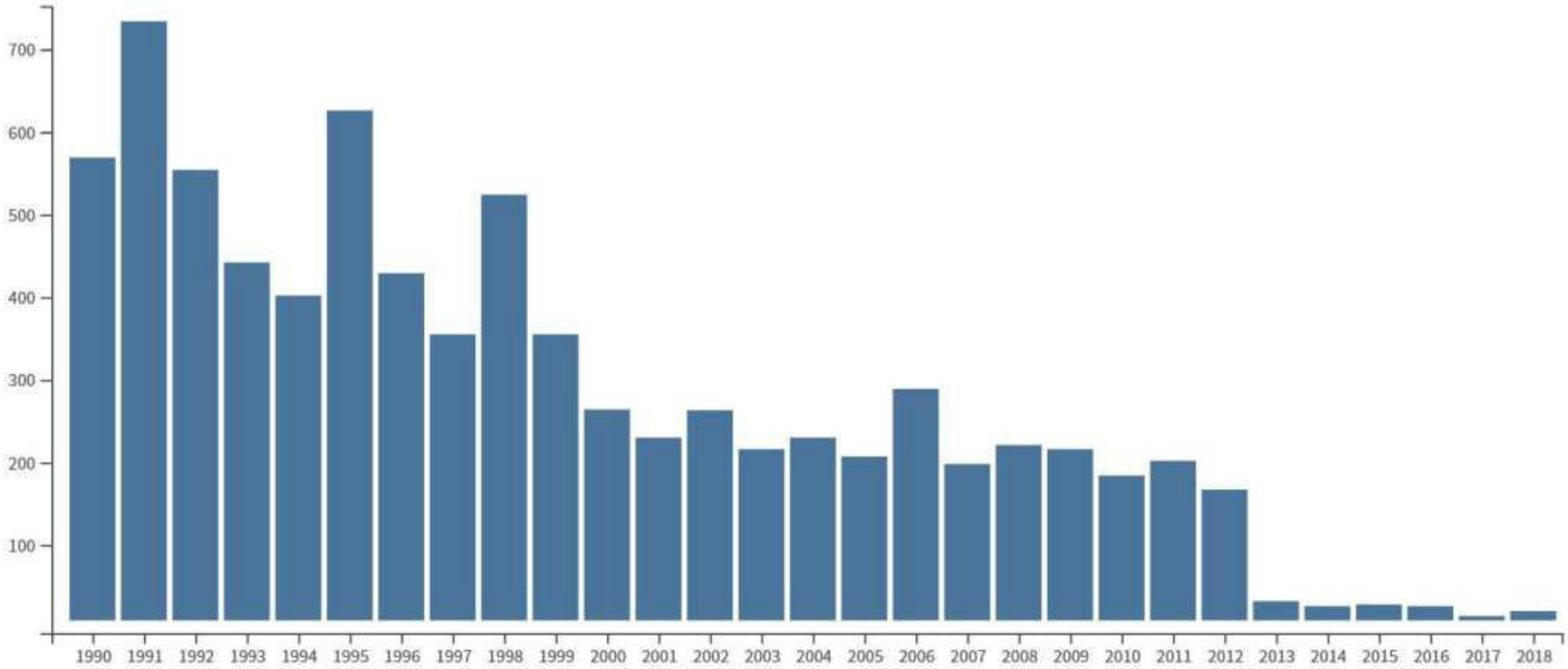
À dater du 1er janvier 2020, les Comptes Rendus de l'Académie des sciences seront publiés par le centre Mersenne pour l'édition scientifique ouverte, pour les séries Mathématique, Physique, Mécanique, Chimie, Géoscience et Biologies, et par le Muséum national d'Histoire naturelle pour la série Palevol.
Les sept revues seront accessibles en libre accès diamant (accès libre et gratuit pour tous aux articles) sur le site : http://comptes-rendus.academie-sciences.fr

Parallèlement, tous les articles publiés entre le 1er janvier 2002 et le 31 décembre 2019 dans les sept revues continueront d'être mis à disposition par Elsevier, en libre accès diamant, sur le site : https://www.journals.elsevier.com

L'Académie des sciences fait ainsi évoluer pour l'avenir l'édition de ses revues afin de les accorder avec les principes de la science ouverte. En même temps, elle poursuit une collaboration avec la société Elsevier, pour la mise à disposition des archives selon les mêmes principes.

A last (side) remark

The number of papers in chemistry written in French



Source : Nicolas Bacaër, hal-02268776v2