









# Researchers regain control of their publication means

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## Who has access to research articles?

Only researchers working in institutions and countries rich enough to afford the very costly subscriptions to academic journals.

Researchers working for companies or in poor institutions, teachers, students, retired researchers and all citizens who finance public research do not have access to most of the research articles.

By 2000 most of the renown scholarly journals have been bought by few major publishers, whose exceptional profits rely on the work that researchers and their funding agencies offer them for free.

Publishers benefit from the digital revolution and the Web to to reduce production costs using online peer-reviewing and publishing, but keep the business model designed for printing on paper.

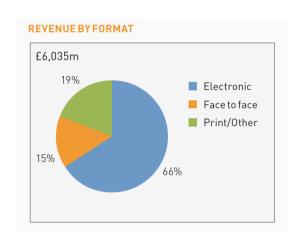


Today few major publishers have acquired an oligopolistic position.



## The oligopoly of academic publishers

Four private commercial companies control academic publishing: Elsevier, Springer Nature, Wiley-Blackwell et Taylor&Francis (Informa).



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Subvention pour charge de service public 2 518,15 77% Ressources propres 765,84 23%

8.4 Billions € turnover of *Reed-Elsevier (RELX)* in 2017

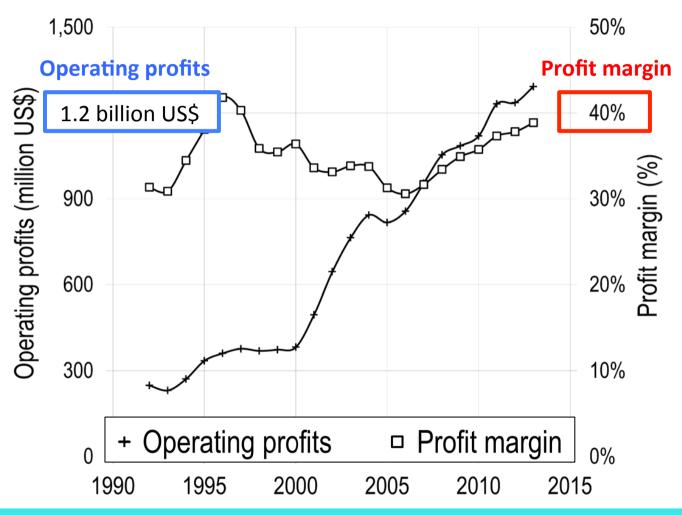
3.3 Billionss € budget of *CNRS* in 2017

http://www.elsevier.com

http://www.cnrs.fr/fr/le-cnrs



## Operating profits and profit margin of the publisher *Reed-Elsevier* for its Scientific, Technical and Medical (STM) division from 1990 to 2015

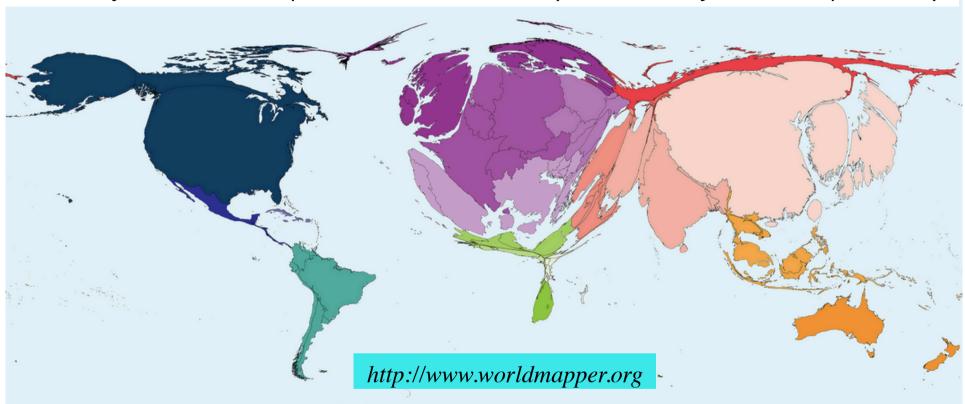


Vincent Larivière et al., The Oligopoly of Academic Publishers, PLOS one, 10th June 2015



## Gold Open Access is counter-productive

Number of research articles published in 2016 divided by the number of inhabitants per country



Publishers impose the *Gold Open Access* model, which flips subscription into *Article Publication Charges* (APCs) one has to pay to publish.

research institutions will get bankrupted or stop publishing!



## The Cost of Knowledge, 2012

In January 2012 *Tim Gowers* and 33 mathematician colleagues called to boycott *Elsevier* and stopped the *Research Works Act*, a bill to the US Congress *Elsevier* was lobbying for.



Sir Tim Gowers, Cambridge University, Fields medal 1998

### 16556 Researchers Taking a Stand. See the list

Academics have protested against Elsevier's business practices for years with little effect. These are some of their objections:

- They charge exorbitantly high prices for subscriptions to individual journals.
- 2. In the light of these high prices, the only realistic option for many libraries is to agree to buy very large "bundles", which will include many journals that those libraries do not actually want. Elsevier thus makes huge profits by exploiting the fact that some of their journals are essential.
- They support measures such as SOPA, PIPA and the Research
   Works Act, that aim to restrict the free exchange of
   information.



## We want to recover control

`Neither author nor reader should have to pay to publish and a journal should not belong to its publisher but to its editorial board.

The publishing of peer-reviewed articles should be done using public infrastructures from where articles are accessible online for free.'

Marie Farge, Note for the French Minister of Research, June 29th 2012 http://openscience.ens.fr/MARIE\_FARGE/



In 2012 CoK proposed the alternative model, *Diamond Open Access* 

Named from the Diamond Sutra, the earliest complete survival of a dated printed book, China, 11th May 868

British Library, London



## We propose Diamond Open Access

1

Authors keep their copyright and allow their articles to be published in Open Access (under the Creative Commons license CC-BY).

https://creativecommons.org/licenses/

2

Editors of a peer-reviewed journal collectively own its title and assets, since they are in charge of peer-reviewing the submitted articles (editors and referees do this for free, as part of their academic duty).

3

Publishers no more own the peer-reviewed journals but become service providers to their editors (who select publishers on a competitive basis).



## We need public publishing platforms

Funding agencies should provide, for free to researchers, publicly-owned platforms, developed using open source software, for peer-reviewing, publishing and archiving articles and data, with the help of librarians and of publishers (as subcontractors).

Anyone from anywhere would have free (gratis and libre) access to peer-reviewed publications (e.g., articles, data, codes, videos) without researchers having to pay to publish their results.

Funding agencies would thus control the quality of peer-reviewing, by selecting the journals having good practices and reputable editors.

Such publishing platforms would give the chance to researchers to experiment new ways of publishing (e.g., open peer-reviewing).



## Examples of public publishing platforms





created in 1999,
it publishes
1249 journals
in open access,
financed by public
agencies from Brazil
(FAPESP, CNPq,
BIREME) and from
15 other countries.



created in 1999,
it publishes
451 journals
in open access,
financed by public
agencies from France
(CNRS, EHESS, BSN,
Aix-Marseille and
Avignon universities).



## **Examples of Diamond OA journals**

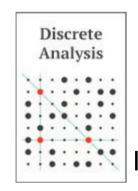
1



IPOL Journal · Image Processing On Line

Founded in 2010 by Jean-Michel Morel, IPOL has 41 editors. It is financed by CNES, ERC and 13 public institutions from 5 countries. Each article contains the text, the algorithm and the source code, which all are peer reviewed. The journal platform also provides online demonstration facility and an archive of experiments. IPOL thus ensures open science and reproducible research.

2



Founded in 2015 by Tim Gowers, DA has 12 editors. It is an overlay journal on the open repository arXiv. It is financed by Cambridge University (10\$/submission).



## Creation of the 'Centre Mersenne' in 2018

Platform for peer-reviewing and publishing *Diamond OA* journals whose articles are submitted in *LaTeX* format.

It was created in 2018 in Grenoble as part of *Mathdoc,* which is a CNRS-INSMI and Université de Grenoble service unit, under the direction of *Thierry Bouche*.

## Guiding principles:

- Quality of peer-reviewing,
- Non-profit public service,
  - Permanent archiving,
- Transparency on costs and on the journal selection process.



## 11 Journals published by 'Mersenne'



Algebraic Combinatorics

Mathematics



Annales Henri Lebesgue
Mathematics



Annales de la Faculté des Sciences de Toulouse Mathematics s



Annales de l'Institut Fourier
Mathematics



Annales Mathématiques
Blaise Pascal
Mathematics



Confluentes Mathematici
Mathematics



## 11 revues publiées par le Centre Mersenne



Journal de l'Ecole Polytechnique
Mathematics



Journal de Théorie des nombres de Bordeaux Mathematics



MathS in Action
Applied mathematics



Publications Mathématiques de Besançon
Mathematics



SMAI Journal of
Computational Mathematics
Applied mathematics



## Today Green Open Access is the best

Today, publishers own journals, together with bibliometry data, that they use as marketing tools to control market, and impose *Gold OA* to keep control of prices (e.g., APCs), which leads to the creation of predatory journals.

Today, researchers want to preserve journals useful to them (those having good reputation and excellent practices), therefore they submit their articles to those they prefer, and deposit their « author's version » in a public open repository.



Green OA is the best solution for a smooth transition to OA, since it preserves academic freedom and prepares Diamond OA.



## Dissemin, a platform to boost Green OA

In September 2014 Antonin Delpeuch created http://dissem.in (he was then student in computer sciences at ENS Paris), which is collectively developed in open source.



'Spot your own paywalled papers. Liberate them in one click!'



## The team CAPSH / Dissemin

http://dissem.in is supported by the non profit association CAPSH (Committee for the Accessibility of Publications in Sciences and Humanities) created on September 5<sup>th</sup> 2015 by :

#### **Antonin Delpeuch**

Graduate student, Computer Science École Normale Supérieure France

Creator and main developer of the platform *Dissemin* 

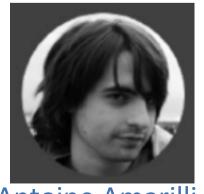


"We need to take a stand against more traditional publishers"



## **Europe's Open Access Champion 2016**





Antoine Amarilli



Pablo Rauzy



Marie Farge



Thomas Bourgeat

## Dissemin lists the articles of any researcher

#### Welcome to dissemin

Dissemin detects papers behind pay-walls and invites their authors to upload them in one click to an open repository.

Try any author name

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#### Green open access

Many researchers do not use their right to make their papers freely available online, in addition to the paywalled version offered by traditional publishers.

This forces libraries to buy overpriced electronic subscriptions to journals, when they can afford them at all.



#### **Open repositories**

Uploading your papers on your own webpage is not enough. Such copies are less stable and harder to find than documents uploaded to well-indexed repositories.

Dissemin searches for copies of your papers in a large collection of open repositories and tells you which ones cannot be accessed.

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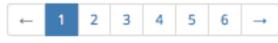
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2016

Coherent Structures in the Boundary and Cloud Layers: Role of Undrafts, Subsiding Shells, and Environmental Subsidence

◆ Download American Meteorological Society, Journal of the Atmospheric Sciences, 2016.



Frank G. Jacobitz, Kai Schneider, Wouter J. T. Bos, Marie Farge

Structure of sheared and rotating turbulence: Multiscale statistics of agrangian and Eulerian accelerations and passive scalar dynamics



American Physical Society, Physical Review E, 1(93), 2016.



Marie Farge, Kai Schneider

2015

Wavelet transforms and their applications to MHD and plasma turbulence: a review



Cambridge University Press (CUP), Journal of Plasma Physics, 06(81), 2015.

#### Researcher

#### Marie Farge

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- ★ École normale supérieure
- ☆ Département de géosciences
- 106 publications



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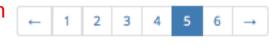
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Marie Farge, Kai Schneider, Giulio Pellegrino, Alan A. Wray, Robert S. Rogallo

2003

Coherent vortex extraction in three-dimensional homogeneous turbulence: Comparison between CVS-wavelet and POD-Fourier decompositions



◆ Upload | American Institute of Physics, Physics of Fluids, 10(15), 2003.



Kai Schneider, Marie Farge

Coherent Vortex Simulation (CVS) of 2D bluff body flows using an adaptive wavelet method with penalisation



▲ Upload | Springer Verlag, Notes on Numerical Fluid Mechanics and Multidisciplinary Design,



Bartosz Protas, Kai Schneider, Marie Farge

2002

Geometrical alignment properties in Fourier- and waveletfiltered statistically stationary two-dimensional turbulence



Physical Review E, 4(66), 2002.



Kai Schneider, Marie Farge

Adaptive Wavelet Simulation of a Flow around an Impulsively Started Cylinder Using Penalisation

#### Researcher

#### Marie Farge

- @ 0000-0002-4445-8625
- ★ École normale supérieure
- ☆ Département de géosciences
- 106 publications



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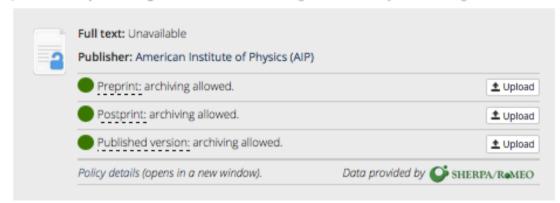
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# Coherent vortex extraction in three-dimensional homogeneous turbulence: Comparison between CVS-wavelet and POD-Fourier decompositions

Journal article by Marie Farge, Kai Schneider, Giulio Pellegrino, Alan A. Wray, Robert S. Rogallo



#### Abstract

The coherent vortex simulation (CVS) decomposes each realization of a turbulent flow into two orthogonal components: An organized coherent flow and a random incoherent flow. They both contribute to all scales in the inertial range, but exhibit different statistical behaviors. The CVS decomposition is based on the nonlinear filtering of the vorticity field, projected onto an orthonormal wavelet basis made of compactly supported functions, and the computation of the induced velocity field using Biot-Savart's relation. We apply it to a three-dimensional homogeneous isotropic turbulent flow with a Taylor microscale Reynolds number R λ =168, computed by direct numerical simulation at resolution N=256 3 . Only 2.9%N wavelet modes correspond to the coherent flow made of vortex tubes, which contribute 99% of energy and 79% of enstrophy, and exhibit the same k -5/3 energy spectrum as the total flow. The remaining 97.1%N wavelet modes correspond to a incoherent random flow which is structureless, has an equipartition energy spectrum, and a Gaussian velocity probability distribution function (PDF). For the same flow and the same compression rate, the proper orthogonal decomposition (POD), which in this statistically homogeneous case degenerates into the Fourier basis, decomposes each flow realization into large scale and small scale flows, in a way similar to large eddy simulation(LES) filtering. It is shown that the large scale flow thus obtained does not extract the vortex tubes equally well as the coherent flow resulting from the CVS decomposition. Moreover, the small scale flow still contains coherent structures, and its velocity PDF is stretched exponential, while the incoherent flow is structureless, decorrelated, and its velocity PDF is Gaussian. Thus, modeling the effect of the incoherent flow discarded by CVS-wavelet shall be easier than modeling the effect of the small scale flow discarded by POD-Fourier or LES.

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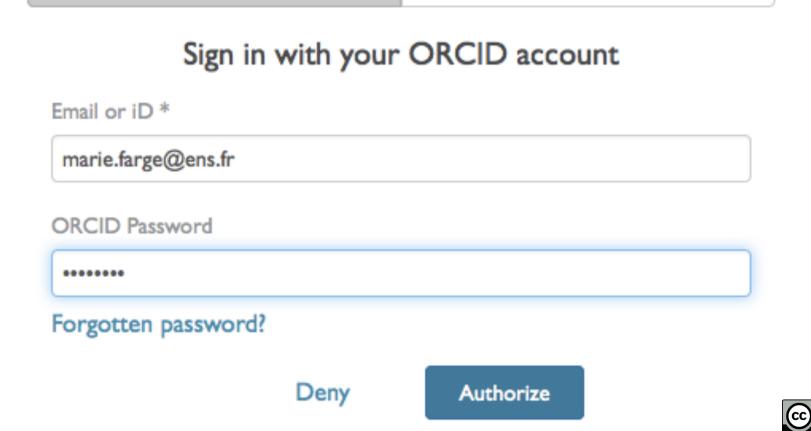
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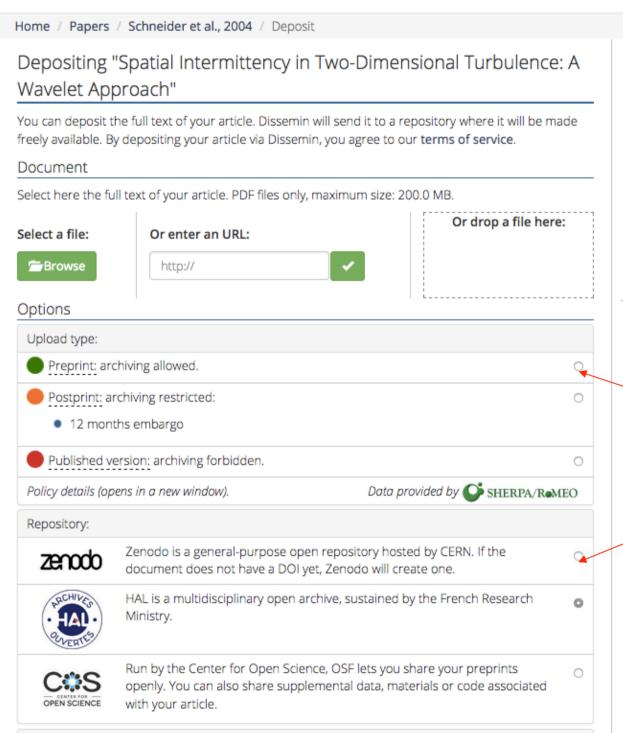
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Coherent vortex extraction in three-dimensional homogeneous turbulence: Comparison between CVS-wavelet and POD-Fourier decompositions

Journal article by Marie Farge, Kai Schneider, Giulio Pellegrino, Alan A. Wray, Robert S. Rogallo

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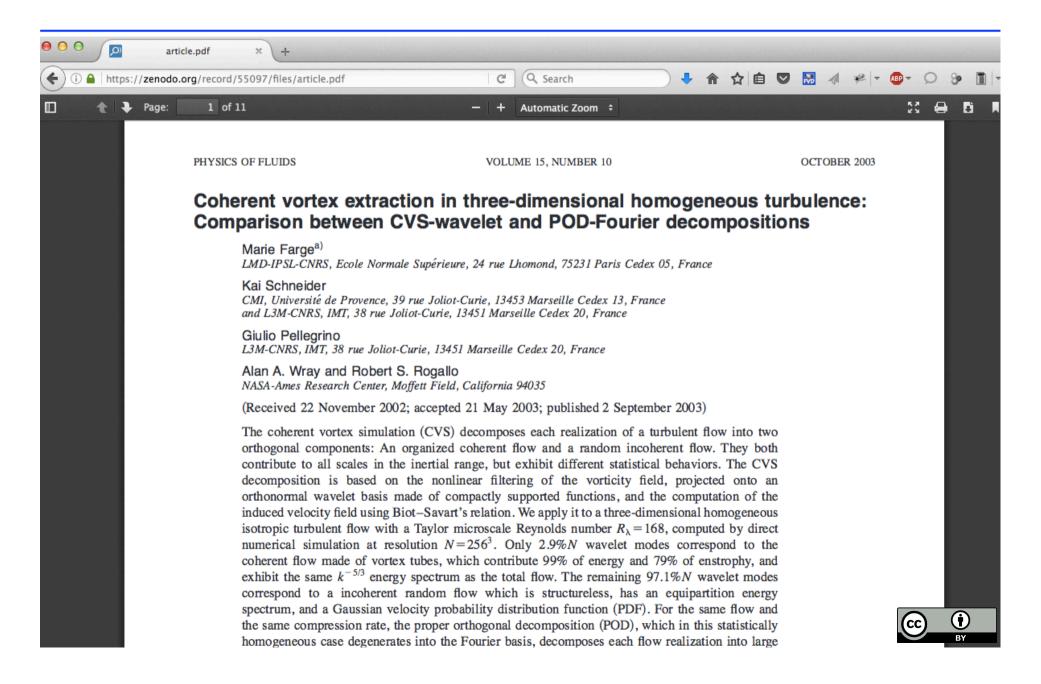
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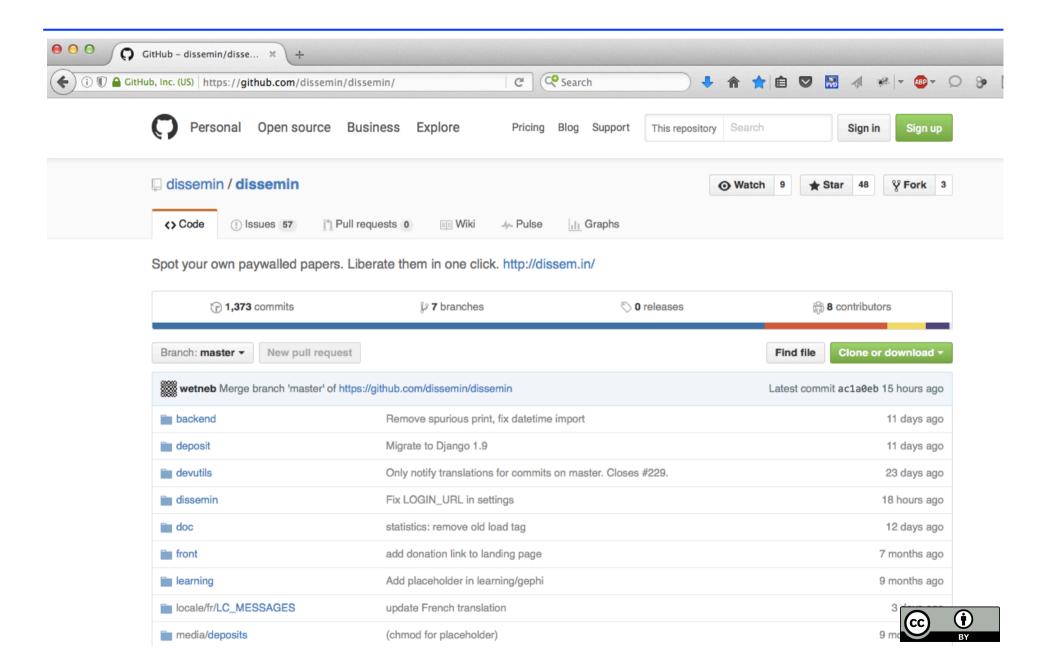




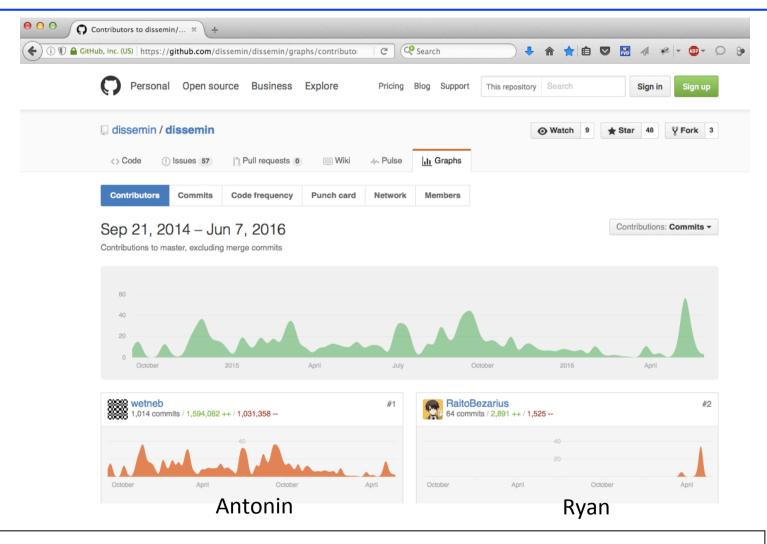
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## The source of *Dissemin* is free on *GitHub*



## To follow the development of *Dissemin*



The source is written in *Python, html, CSS* and *JavaScript*. You are most welcome to participate to its development!



## Conclusion

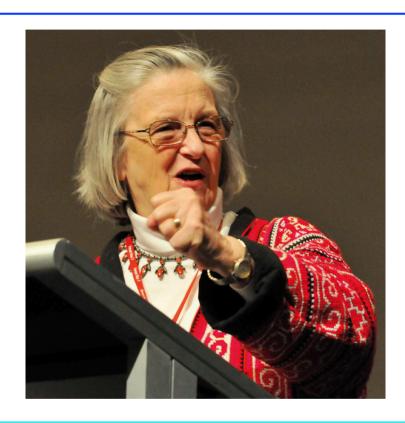
Today investments, for producing and peer-reviewing articles, are public but ownership of journals, peer-reviewing reports, platforms (for peer-reviewing, publishing, bibliometry) and profits (from subscriptions, APCs and data) are private.

Publishers should become service providers to publicly funded and publicly owned publishing platforms, without owning anymore articles, journals, platforms (for peer-reviewing, publishing, bibliometry) and data.



Funding agencies should provide public platforms developed in open source for peer-reviewing, publishing and archiving research outputs. Intellectual property laws should guarantee that research outputs remain public and open to develop knowlegde as a commons.

## **Elinor Ostrom (1933-2012)**



Charlotte Hess and Elinor Ostrom, Understanding knowledge as a Commons, MIT Press, 2006



The only woman who has ever received the Nobel prize in economic sciences.



## **Principle**

Ideas are not of the same nature as material products, since when you give an idea you do not lose it.

Therefore, knowledge is not a product to be traded, but a commons to be shared, since exchange of ideas is a positive-sum game.

In 2009 Elinor Ostrom got the Nobel prize in economic sciences for 'her analysis of economic gouvernance, especially the commons, showing how common resources can be managed successfully by the people who use them, rather than by governments or private companies'.



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