

Open Science Challenges and best practices: a view from research institutes in Italy

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MINERVA Study Visit 2021.05.17

In collaboration with R.Barbera, M.Maggi, D.Menasce, L.Patrizii (INFN OA working group)



DOI: 10.15161/oar.it/73794

Open Science: Challenges and Best Practices



S. Bianco et al., Open Science: Challenges and best practices - Minerva Study Visit @ IChIMarconi 2021.05.17 ----- DOI: 10.15151/oa.r.it/73794

J.M.W. Turner



Open Science in the National Institute for Nuclear Physics of Italy (INFN)

S.Bianco R.Barbera M.Maggi

D.Menasce L.Patrizii

M. Pallavicini (*ex-officio, Member of INFN Executive Board*)

INFN Open Access Working Group

P.Lubrano

INFN Research Assessment Working Group

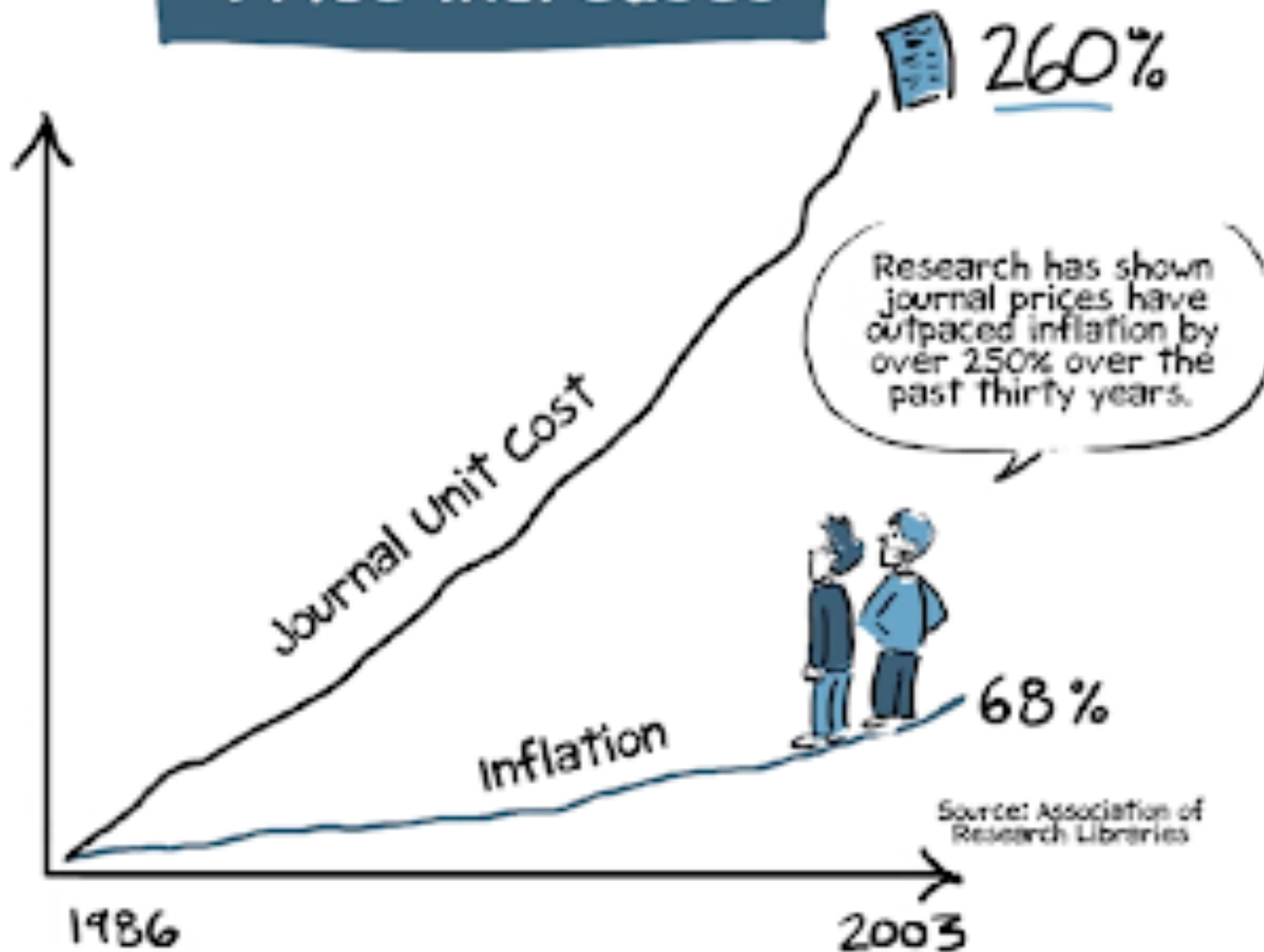
Outline

- Brief history of Open Access
- Plan S
- Challenges and opportunities and conclusions

Open Access (OA)

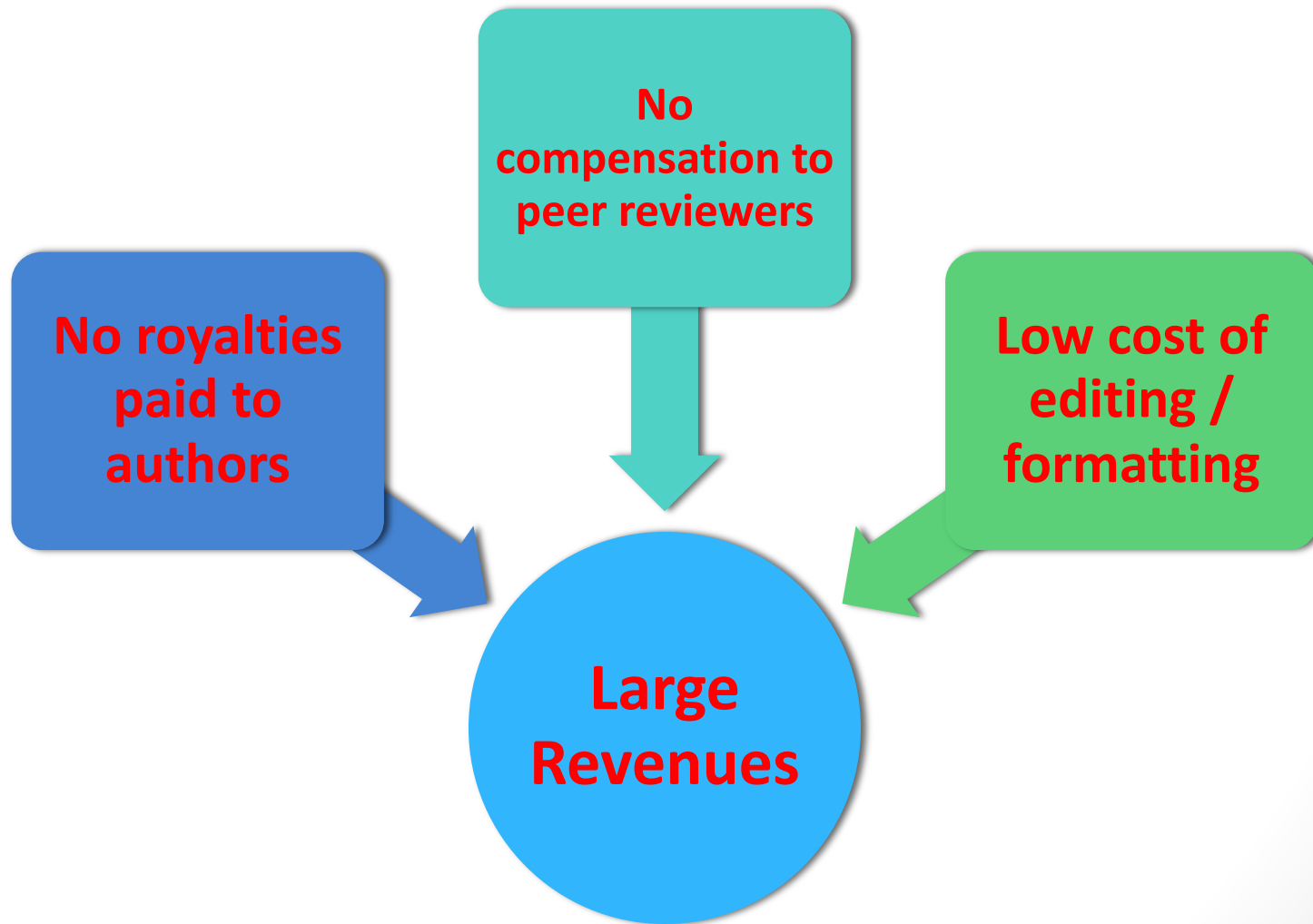
- (*circa* 2001) All results from publicly funded research must be immediately and freely available to the taxpayer that has funded it.

Price Increases



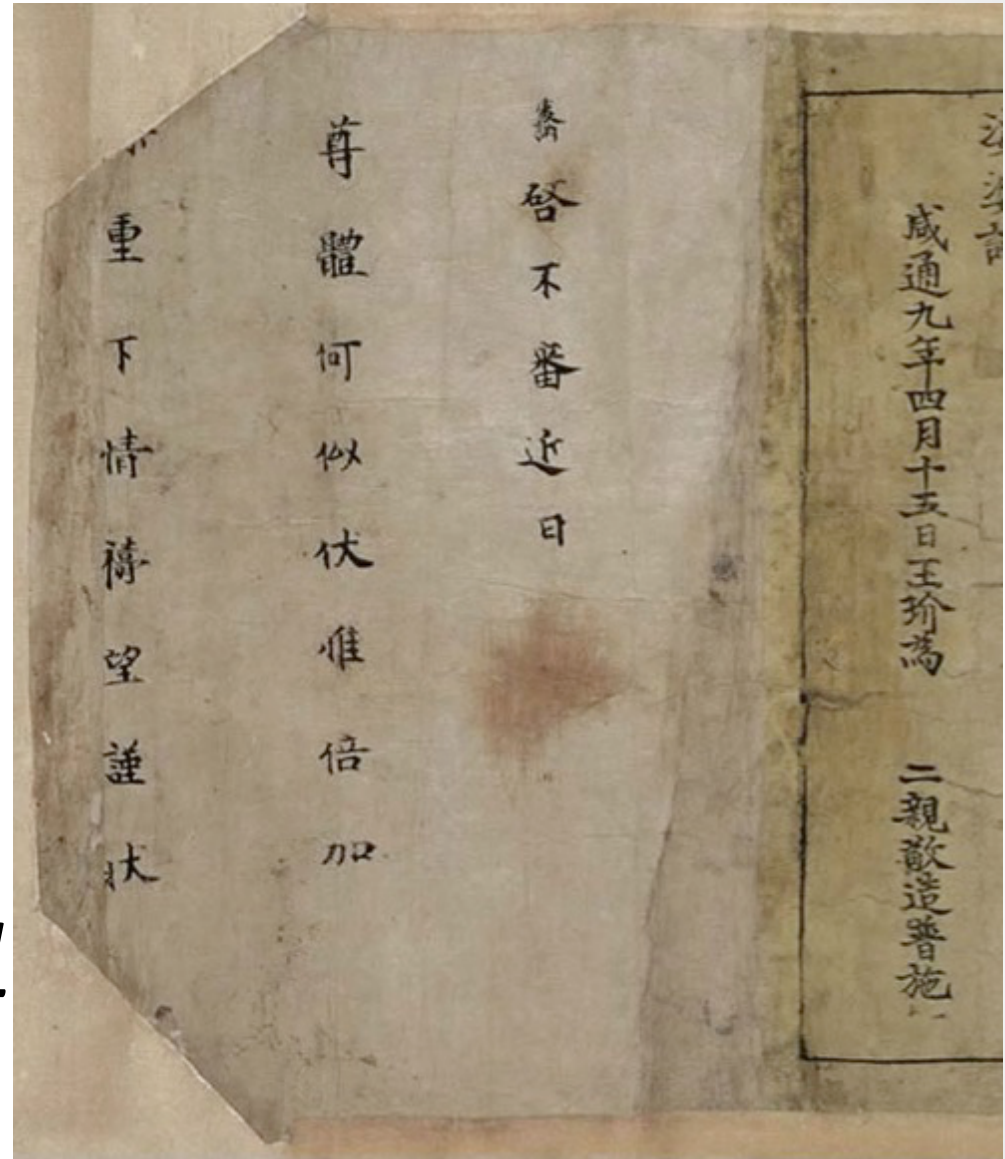
Source: Association of Research Libraries

Top 5 commercial publishers



Il κολοφών del libro Diamond Sutra

“Reverently made for universal free distribution by Wang Jie on behalf of his two parents, 11 May 868.”



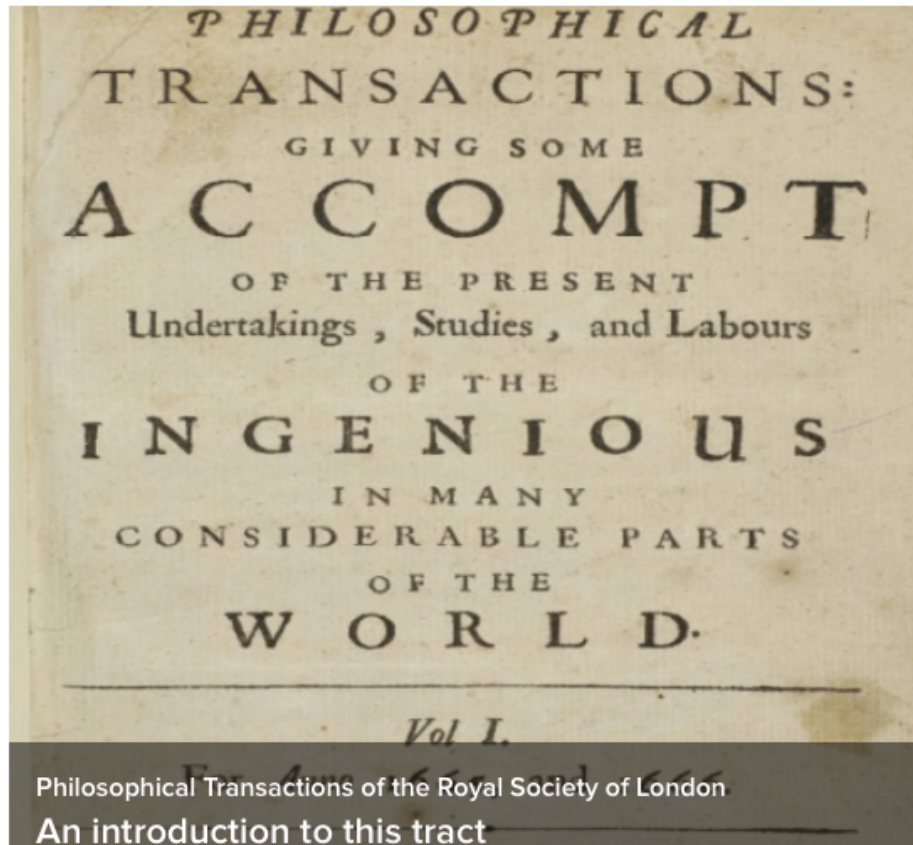






ABRAHAM ELZEVIRO DI LEIDA, PAESI BASSI

Featured Articles



Philosophical Transactions of the Royal Society of London

An introduction to this tract

An introduction to this tract

**Eclipsis Solis anno 1675, die
23 Junni mane ft.n.observ.
Gedani à Job. Hevelio**

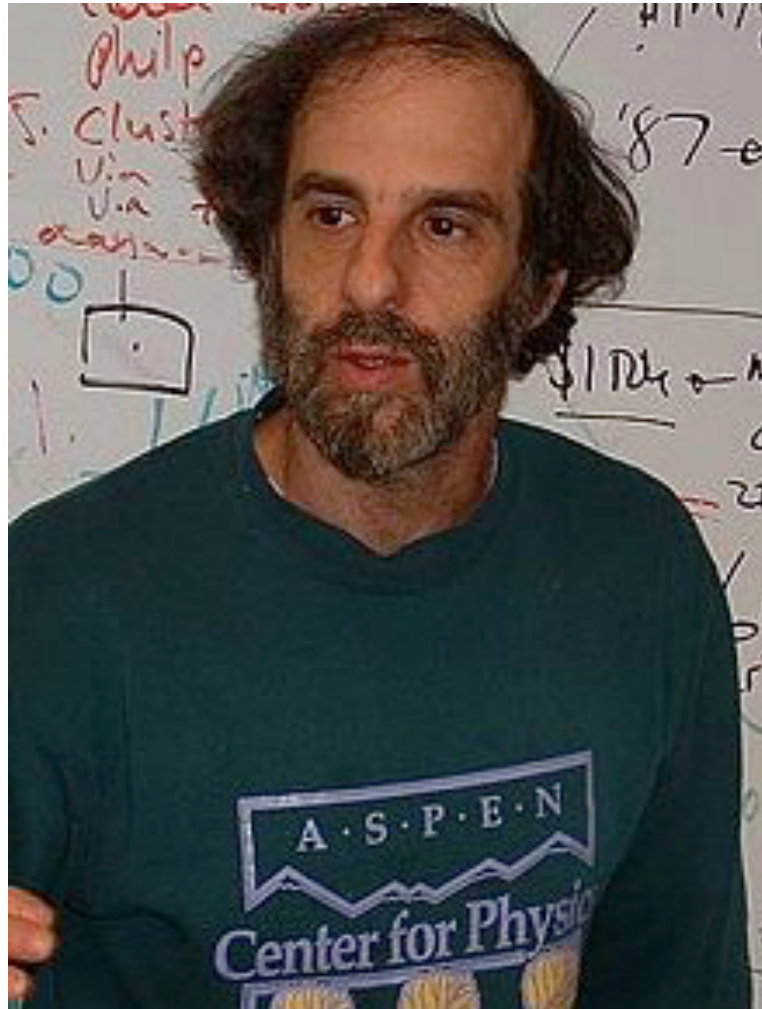
Johannes Hevelius

**An abstract of a letter from
Mr. Anthony Leewenhoeck
of Delft to Mr. R. H.
concerning the
appearances of several
woods, and their vessels.**

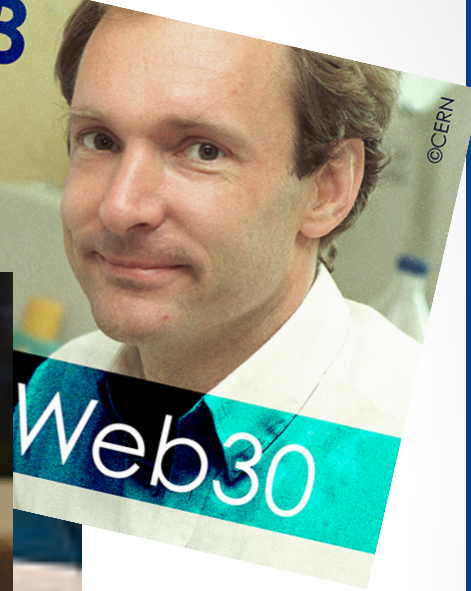
Antoni Van Leeuwenhoek

**XXIII. Farther observations
on the feet of animals**

1991 Paul Ginsparg and arXiv



August 6th, 1991 – birth of www @ CERN



1997 SISSA Trieste (Amati & Bonora)
establish JHEP → now operated by
Springer



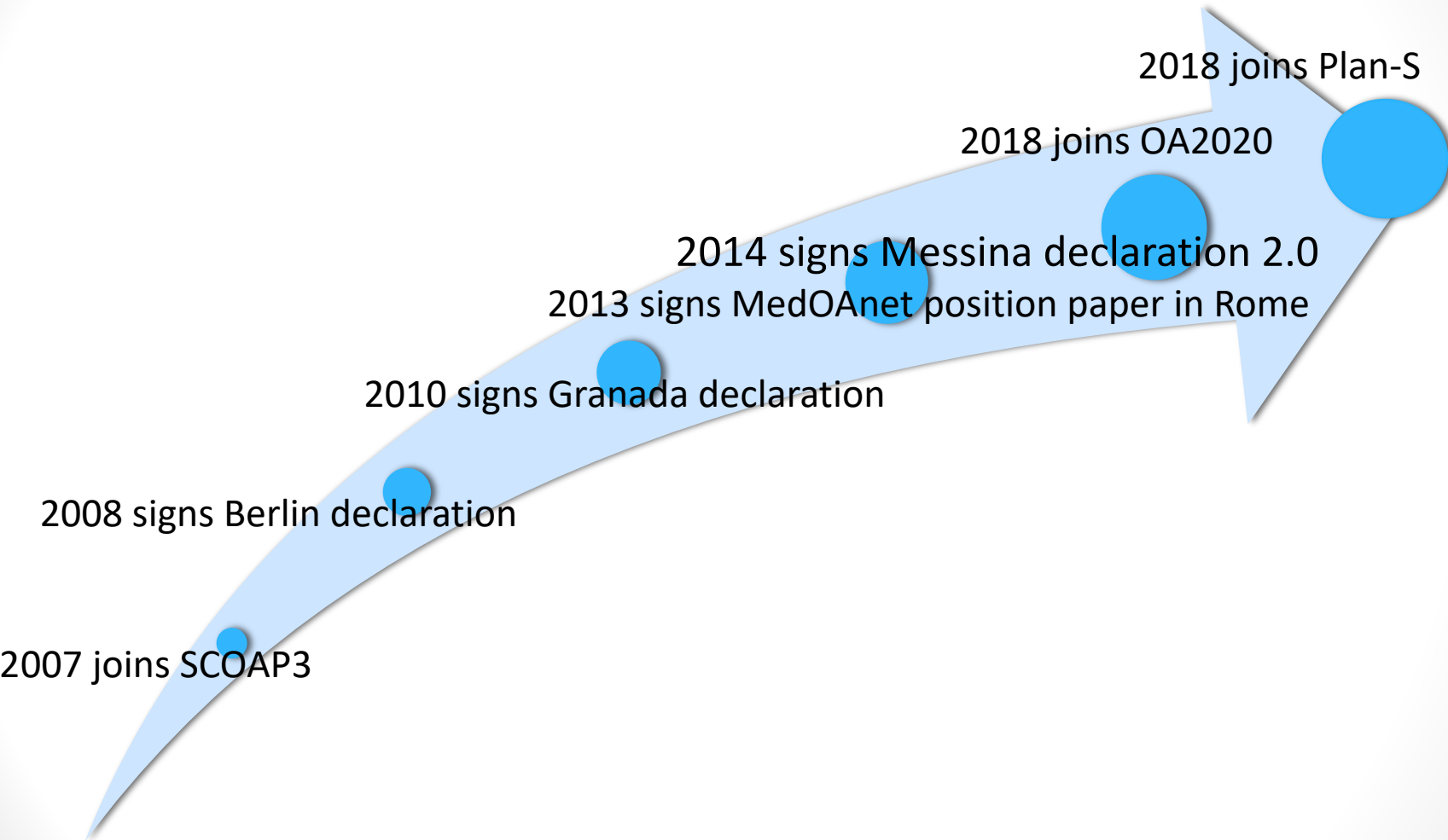
the Frascati institutional repository
contains preprints dating back **1954**
openaccessrepository.it

LNF - 54/15
26. 3. 1954.

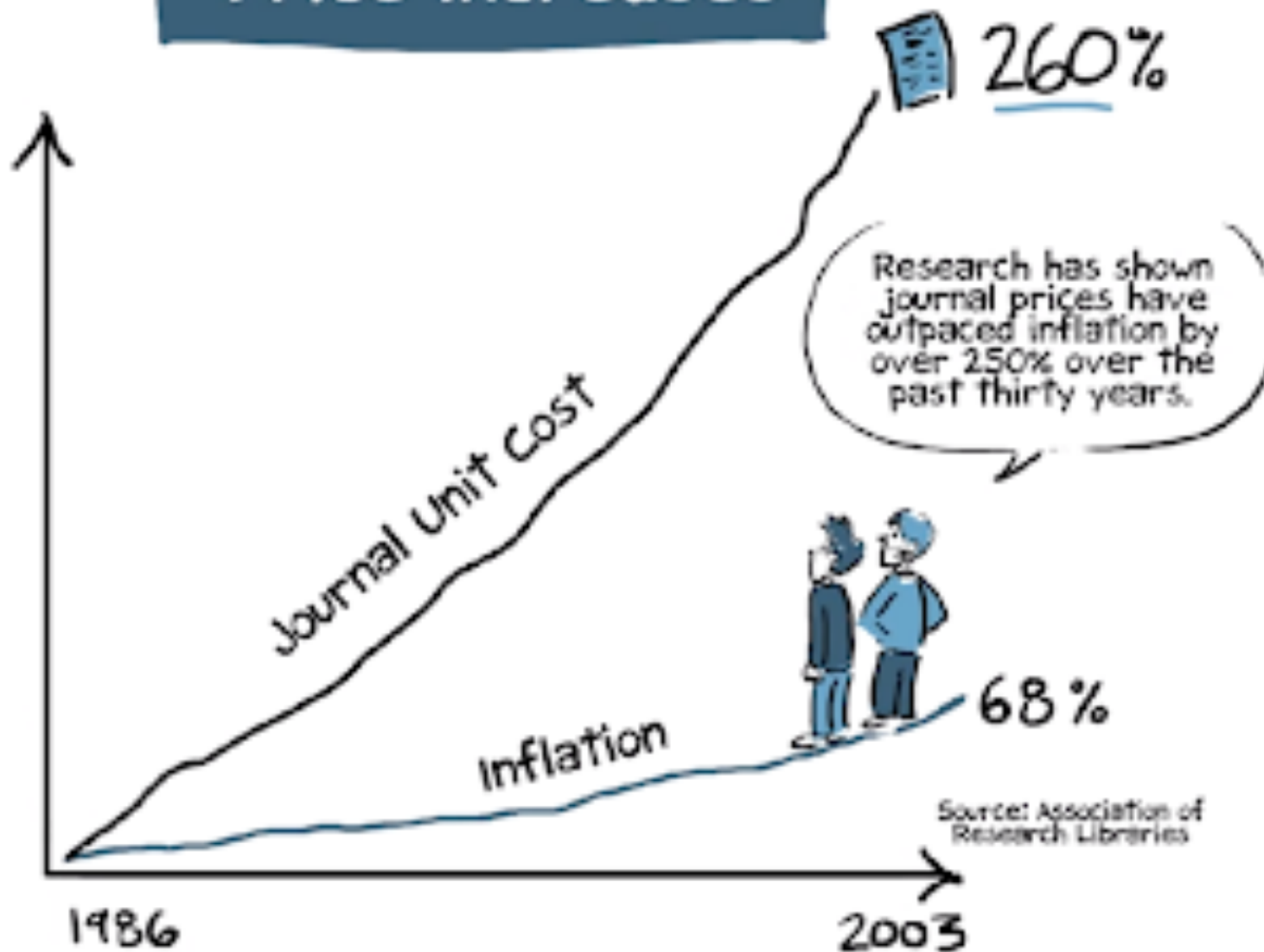
G. Salvini: PROPOSAL OF A SYNCHROTRON WITH A DOUBLE
VACUUM CHAMBER.

(v. 54/47)

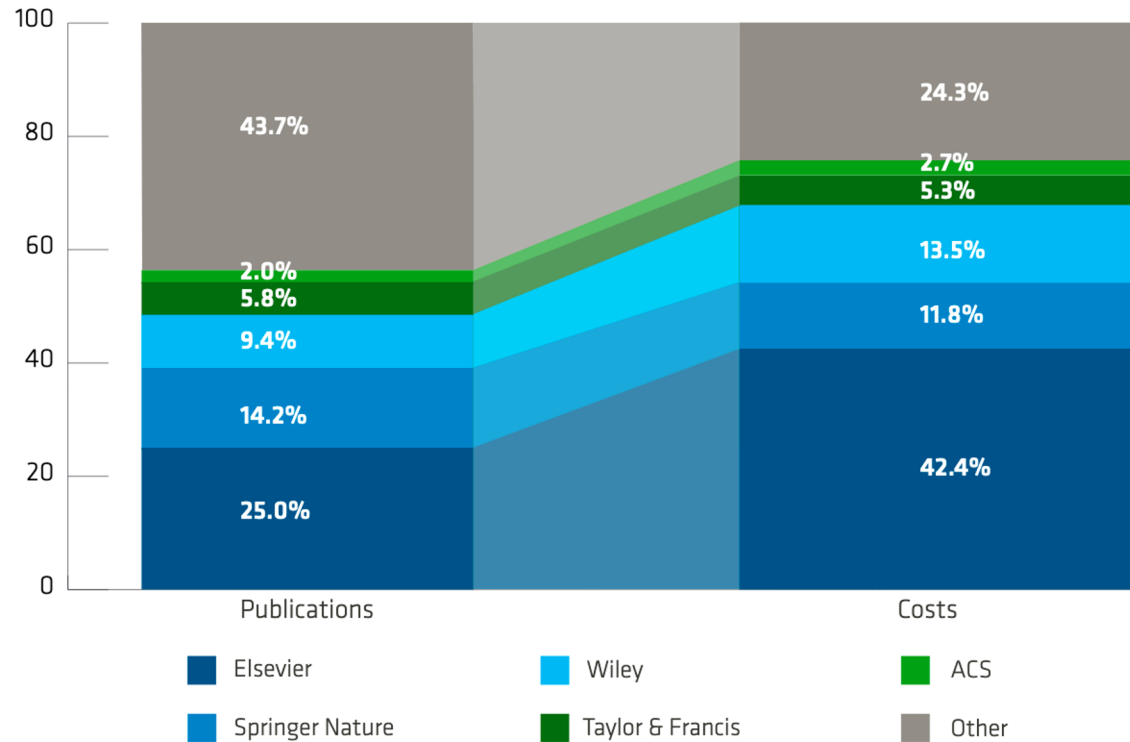
Infne Open Access



Price Increases



Subscription Market: a monopoly



Decrypting the Big Deal landscape Follow-up of the 2019 EUA Big Deals Survey Report
<https://eua.eu/resources/publications/889:decrypting-the-big-deal-landscape.html>

- Each journal is a micro-monopoly → **rigid** market
- Impact Factor used in research evaluation
 - → Tendency to prefer high-IF journals



(2018)Germany, Sweden, Hungary, Univ. California, ICTP and SISSA cancel contracts with Elsevier

Swedish Rectors' Conference

- **Spring 2018:**
- Discussion about the negotiations with Elsevier
- A choice of approach
- Unanimously decision to advice the Bibsam steering committee to cancel the agreement with Elsevier



ICTP, SISSA Trieste no Elsevier deal since 2018



It's no big deal
un anno senza Elsevier

Nicoletta Zar
Marie Curie Library
The Abdus Salam International Centre for Theoretical Physics
Trieste

X Convegno NILDE 2019 - 30/31 maggio 2019 - Pavia



Glossary – Roads to OA

Green Open Access

Publish on a subscription journal -
Deposit the **AAM*** in OA repository

"Subscription" MODEL

Gold Open Access

Publish on OA journal after paying **Article Processing Cost (APC)**

"Article Processing Costs" MODEL

Hybrid Open Access

~~Publish OA on a subscription journal and pay APC (*double dipping*)~~

Diamond Open Access

Publish on OA journal without APC payment, publication supported collectively or institutionally.

*AAM= Authors Accepted Manuscript



Author's Accepted Manuscript

A new approach in modeling the behavior of RPC detectors

L. Benussi^a, S. Bianco^a, S. Colafranceschi^{a,b,c,1}, F.L. Fabbri^a, M. Giardoni^a, L. Passamonti^a,
D. Piccolo^a, D. Pierluigi^a, A. Russo^a, G. Saviano^{a,b}, S. Buontempo^d, A. Cimmino^{d,e},
M. de Gruttola^{d,e}, F. Fabozzi^d, A.O.M. Iorio^{d,e}, L. Lista^d, P. Paolo^f,
D. Pagano^f, S.P. Ratti^f, A. Vicini^f, P. Vitulo^f, C. Viviani^f, A. Sharma^g

^aINFN Laboratori Nazionali di Frascati, Via E. Fermi 40, I-00044

^bSapienza Università degli Studi di Roma "La Sapienza", Piazzale A.

^cCERN CH-1211 Genève 23 F-01631 Switzerland

^dINFN Sezione di Napoli, Complesso Universitario di Monte Sant'Angelo, edifi

^eUniversità di Napoli Federico II, Complesso Universitario di Monte Sant'Angelo,

^fINFN Sezione di Pavia and Università degli studi di Pavia, Via Bassi 6,

Abstract

The behavior of RPC detectors is highly sensitive to environmental variables. A novel approach of RPC detectors in a variety of experimental conditions. The algorithm, based on Artificial Neural Networks (ANN), has been developed and tested on the CMS RPC gas gain monitoring system during commissioning.

<http://arxiv.org/abs/1012.5508v1>

Key words: RPC, CMS, Neural Network, muon detectors, HEP

08v1 [physics.ins-det] 26 Dec 2010

Same identical content

Only the VoR contains the publisher's quality stamp

The screenshot shows the final published version of the paper. At the top, it features the Elsevier logo and the journal title "Nuclear Instruments and Methods in Physics Research A". The article title "A new approach in modeling the behavior of RPC detectors" and the authors' names are listed. Below the title, there is a section for "ARTICLE INFO" which includes the publication date "Available online 12 October 2010" and the journal volume "Nuclear Instruments and Methods in Physics Research A 661 (2012) 5182–5185". The abstract is repeated, and the main text begins with an introduction. The page number "112" is visible in the bottom right corner. A large "Version Of Record" watermark is overlaid on the page.

Impact Factor

$$IF_{y,2} = \frac{Citazioni_{y-1} + Citazioni_{y-2}}{Pubblicazioni_{y-1} + Pubblicazioni_{y-2}}$$

- New journal has IF=0 for two years
- IF Index is subject to problems (self citations, negative citations etc.)



Restrictive law on copyright will not guarantee free posting of AAM/postprint unless contractual.

Research assessment based on $IF_{y,5}$ and Citations

Authors publish on journals with high IF

New, quality journals cannot have an IF before 2/5 years

Peer review provided by (unpaid) scientists

ANVUR (Research assessment govern. agency) considers only journals indexed on WOS and SCOPUS

Minimal editing is provided by publishers



- Establishing Open Access practices is a challenge
- The evaluation of research (careers, fundings, etc) is entwined with bibliometric criteria, particularly Impact Factor (IF) in STEM disciplines
- Commercial databases are used for governmental research assessment
- How much do we spend in subscriptions ?

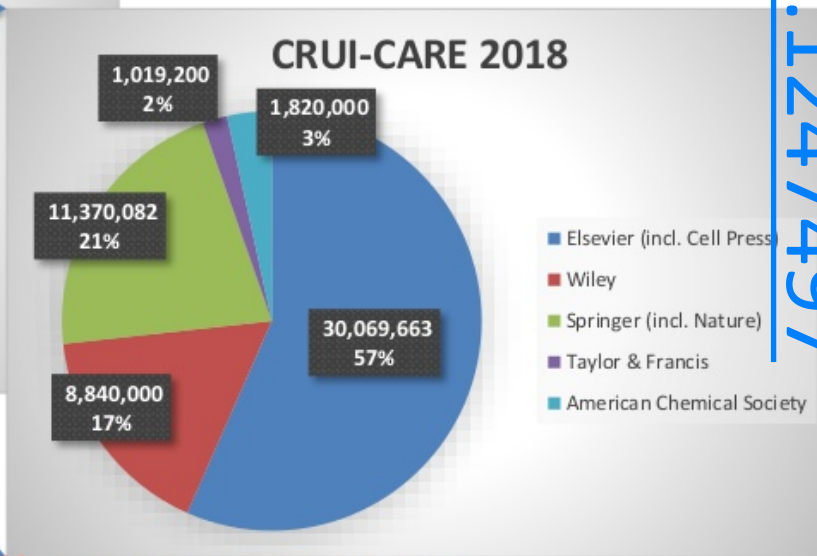
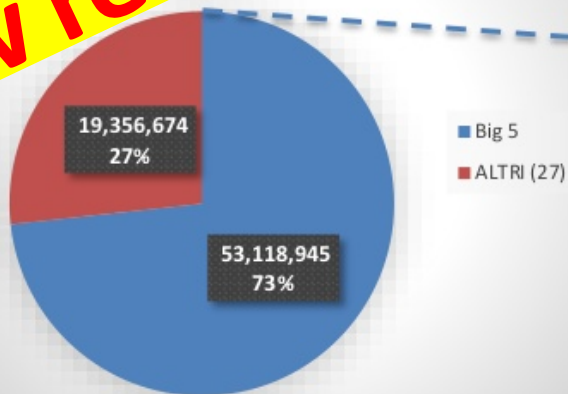
Quanto costa l'accesso a letteratura scientifica in Italia?

CRUI – Amm. Contratti Pubblici
<https://www.crui.it/contratti-pubblici.html>

**subscriptions in 1 year = 1450
new researchers**

2018
totale = € 72.475.619

~ 1.450 nuovi ricercatori



Costi di APC non inclusi nelle contrattazioni

[10.5281/zenodo.1247497](https://doi.org/10.5281/zenodo.1247497)

Ref: S. Mangiaracina

OA initiatives promoted by INFN

- oa2020.org INFN e Conference of Italian Rectors (CRUI)
- scoap3.org INFN, CRUI, ENEA, CNR
- Plan S cOAlition-S.org
 - Funders:
 - Will not pay APC on hybrid journals
 - Will not use impact factor (IF) for research assessment (following the principles of sfdora.org)
non utilizzeranno l'impact Factor (IF) per la valutazione (secondo i principi di sfdora.org)
 - Support the green route (immediate deposit of AAM on OA repository)

National funders



Charitable and international funders



European funders



Plan S: a disruptive initiative Guidelines (May 2019)



OA journals

1



Immediate deposit of AAM
on OA repository

2



Transformative
agreements

3



No hybrid journals

Immediate OA, No embargo

No copyright of AAM transfer to publisher

Research assessment: No Impact Factor

INFN implementation: starting on new projects approved after 01-01-2021



Q: Which model is supported by Plan S ? (Subscriptions/APC/etc)

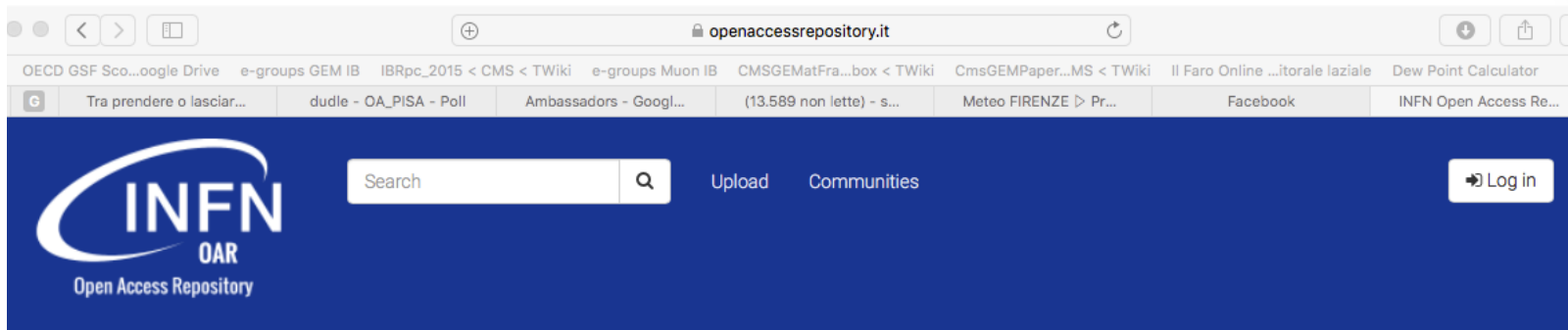
A. Plan S does not support any model in particular; funders will not fund publications of papers on double dipping journals.

- The subscription model is rigid (monopolistic)
- The APC model (pay to publish) should be less rigid (more competitive)
 - Transformative Agreements (APC pay to publish)
 - Negotiate fee waivers for Institutes without funding
 - Carefully monitor the evolution of APC prices
 - In Italy (CRUI, CNR, INFN, etc) and Europe strong interest to transformative agreements
- While subscribing Transformative Agreements, INFN considers the green route as priority
- **New institutional repository openaccessrepository.it (OAR)**

Openaccessrepository.it (OAR)

Try it, free DOI when depositing your content

Curated by Frascati Lab library



Latest entries

March 10, 2010 (v1) Presentation Open Access

Performance Analyses of EGEE-like Grids in Asia and Latin America

Fargetta, Marco; Scardaci, Diego; Ciuffo, Leandro N.

Evaluate the status of several EGEE-like infrastructures outside of Europe

Uploaded on March 18, 2019

View

November 24, 2015 Book section Open Access

MEASUREMENT OF FORWARD AND BACKWARD MEAN CHARGED-PARTICLE MULTIPLICITIES IN HIGH-ENERGY (pp) SOFT INTERACTIONS AND COMPARISON WITH HIGH-ENERGY NEUTRINO AND ANTINEUTRINO DEEP INELASTIC SCATTERING

M. BASILE; G. BONVICINI; G. CARA ROMEO; L. CIFARELLI; A. CONTIN; M. CURATOLO; G. D'ALI; C. DEL PAPA; B. ESPOSITO; P. GIUSTI; T. MASSAM; R. NANIA; G. SARTORELLI; G. SUSINNO; L. VOTANO; A. ZICHICHI

Uploaded on March 7, 2019

View

February 13, 2019 Book section Open Access

View

INFN Open Access Repository at a glance

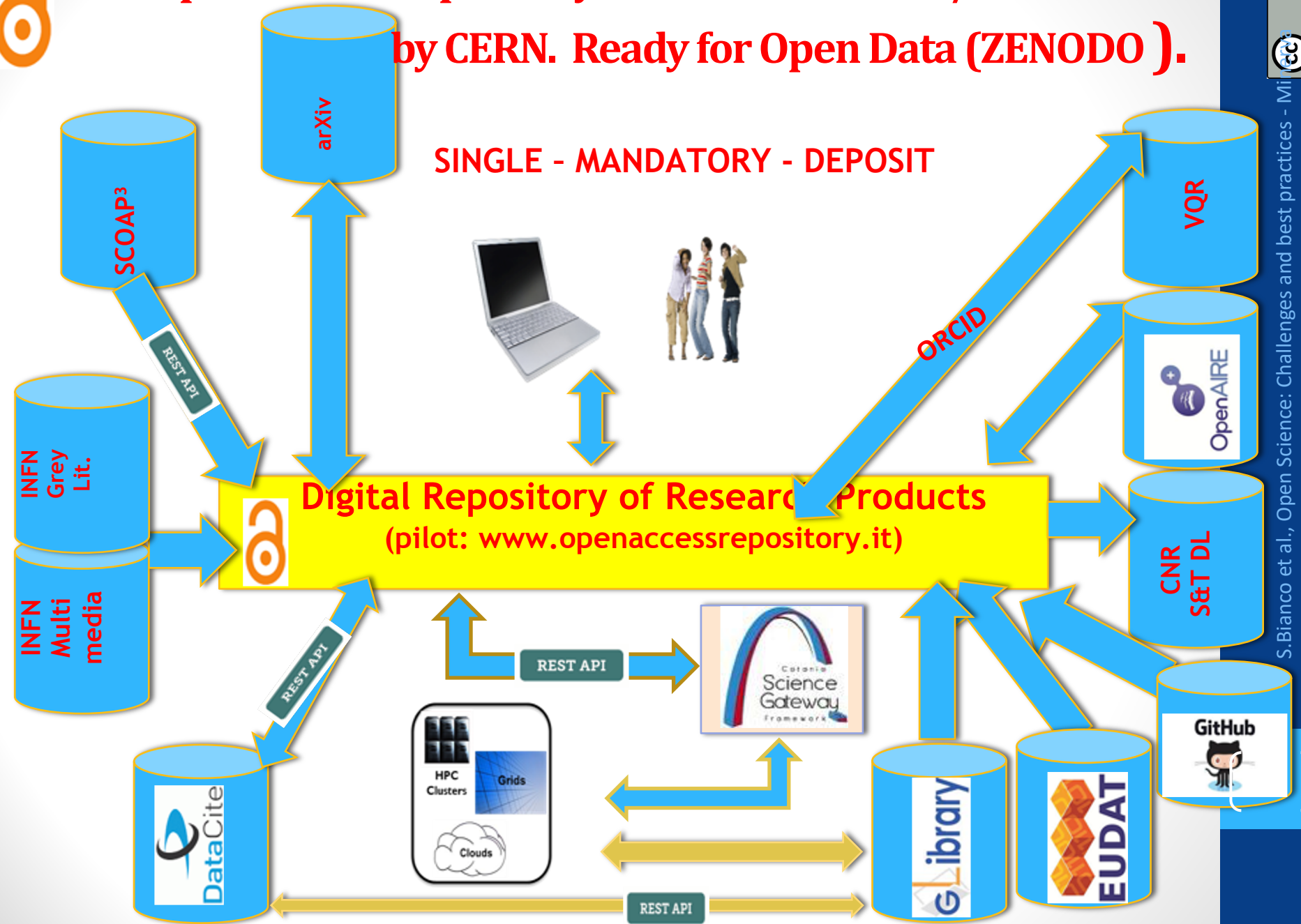
- **Research. Shared.** – all research outputs from across all domains of INFN research are welcome!
- **Findable. Citeable. Discoverable.** – each upload gets a Digital Object Identifier (DOI) to make it easily and uniquely citeable. You can (automatically) link your research outputs to your ORCID profile.
- **Communities** – create and curate your own community for a workshop, project, Division, Laboratory, service, journal, etc. into which you can accept or reject uploads.
- **Funding** – you can associate an upload to the grant that has funded the work.
- **Flexible licensing** – you can choose among several licenses. You can also upload closed or embargoed research outputs.

Tweets by @INFN



INFN Open Access Repository. Based on INVENIO/INSPIRE sw by CERN. Ready for Open Data (ZENODO).

SINGLE - MANDATORY - DEPOSIT



INFN repository: CovidStat



March 30, 2021 Plot Open Access

CovidStat project summary plots

Lista, Luca; Menasce, Dario; Mezzetto, Mauro; Pedrini, Daniele; Spighi, Roberto

This record contains the daily update summary plots of the data of the CovidStat project. CovidStat is a project carried out by the CovidStat Working Group at INFN, whose creation was promoted within the Italian National Institute of Nuclear Physics with the aim of making a statistical analysis of the data provided daily by the Civil Protection on the spread of the pandemic in Italy. CovidStat data can interactively be browsed at <https://covid19.infn.it>.

To reproduce the plots, please refer to the correct version of the dataset and analysis software indicated in the related identifiers listed below.

Preview

Abruzzo - decessi giornalieri - 30/03/2021

1,340 views 639 downloads

See more details...

Publication date: March 30, 2021

DOI: DOI 10.15161/oar.it/73619

Keyword(s): COVID-19 CovidStat project FAIR data Open Science

Related identifiers: Compiled by: 10.15161/oar.it/23545, 10.15161/oar.it/23547

Communities: COVIDSTAT-INFN INFN

License (for files): Creative Commons Attribution Share-Alike 4.0

Versions

Version	DOI	Date
Version 357	10.15161/oar.it/73619	Mar 30, 2021
Version 356	10.15161/oar.it/73617	Mar 29, 2021
Version 355	10.15161/oar.it/73615	Mar 28, 2021
Version 354	10.15161/oar.it/73613	Mar 27, 2021

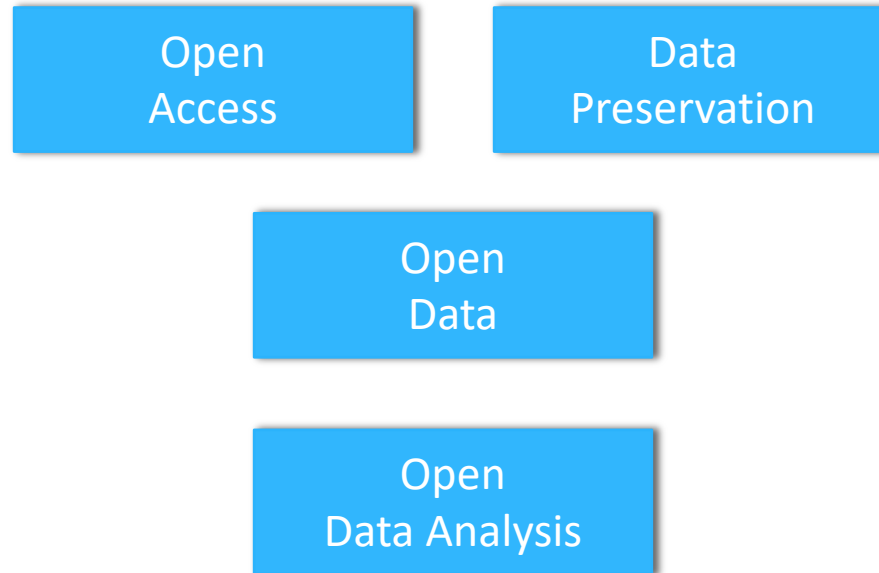
Risultati

Dati

Software

S.Bianco et al., Open Science: Challenges and best practices - Minerva Study Visit @ UniMarconi 2021.05.17 ----- DOI: 10.15161/oar.it/73794

New physics with archeo-data



- First determination of the strong coupling constant at NNLO
- New searches in existing e^+e^- data
- QGP-related effects studied in e^+e^- data

OAR is ready for the analysis of archeo-data



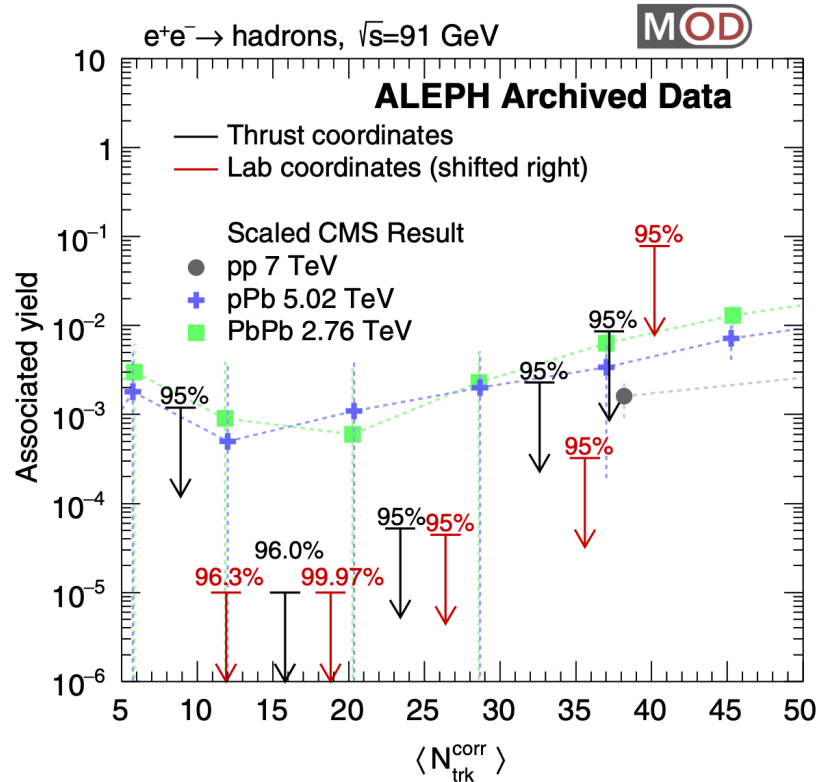
Measurements of Two-Particle Correlations in e^+e^- Collisions at 91 GeV with ALEPH Archived Data

Anthony Badaea,¹ Austin Baty,¹ Paoti Chang,² Gian Michele Innocenti,¹ **Marcello Maggi,³** Christopher McGinn,¹ Michael Peters,¹ Tzu-An Sheng,² Jesse Thaler,¹ and Yen-Jie Lee,¹

¹Massachusetts Institute of Technology, Cambridge, Massachusetts 02139, USA

²National Taiwan University, Taipei 10617, Taiwan

³INFN Sezione di Bari, Bari, Italy



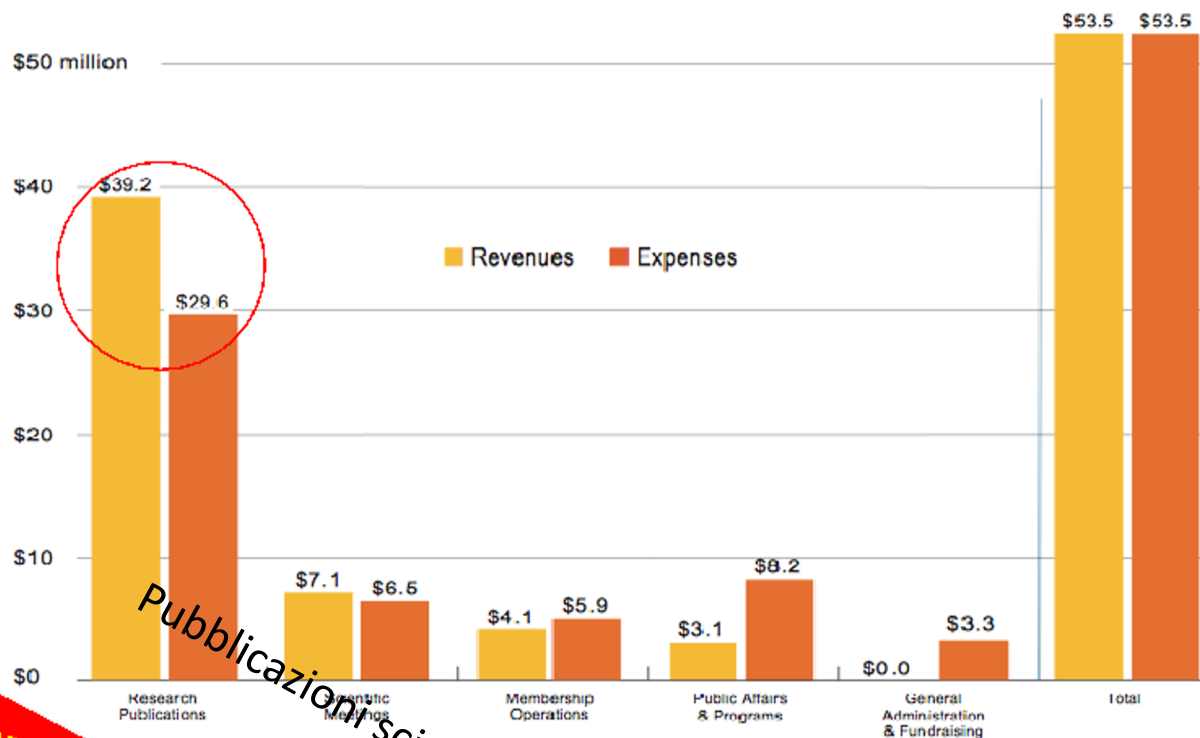
Scientific Societies

S.Bianco and L.Patrizii, PLAN S and other progress for Open Access to knowledge, SCIRES 2020 <http://dx.doi.org/10.2423/i22394303v10Sp59>

- Historically, the inventors of large scale dissemination of knowledge
- no-profit/no-loss
 - But very much dependent on scientific publications
- Very cautious in switching from subscriptions to APC
 - But normally in favour of green OA
- Example: non-APC, Open Access model adopted by Europ Math Society
 - Subscribe 2 Open
 - <https://ems.press/subscribe-to-open>
 - Plan-S compliant

How much do publishers make ?

ATING REVENUE
EXPENSES (IN \$M)



Publicazioni Scientifiche

Scientific Publishers have a huge ROI
NO copyright royalties paid to authors
NO compensation to peer reviewers

Courtesy of A.Kohls and S.Mele CERN



Recente workshop with SIF, EPS, EMS

2020.07.14

Organised by GSSI in collaborazion with UMI and INFN (P.Marcati, B.Nelli, S.Bianco)

Workshop on Green Open Access, Transformative Agreements and Plans

Invited Speakers

Angela Bracco (Univ. Milano), President of Società Italiana di Fisica

Paola Calimberti (Univ. Milano), Research Evaluation and Open Science working group

Jeremy Alibon (Oxford Univ)

Frédéric Holain (Univ.Paris Diderot) EC member of European Math. Society

Maria Chiara Pievatolo (Univ. Pisa) , University Press editor and vicePresident of AISA

Ulrich Pöschl (Max Planck Institute for Chemistry)

Johan Rooryck (Univ. Leiden), Coalition S

Petra Rudolf (Univ Groningen), President of European Phys. Society

Stefano Ruffo (SISSA Trieste), Rector and Coordinator of CRUI Library Commission

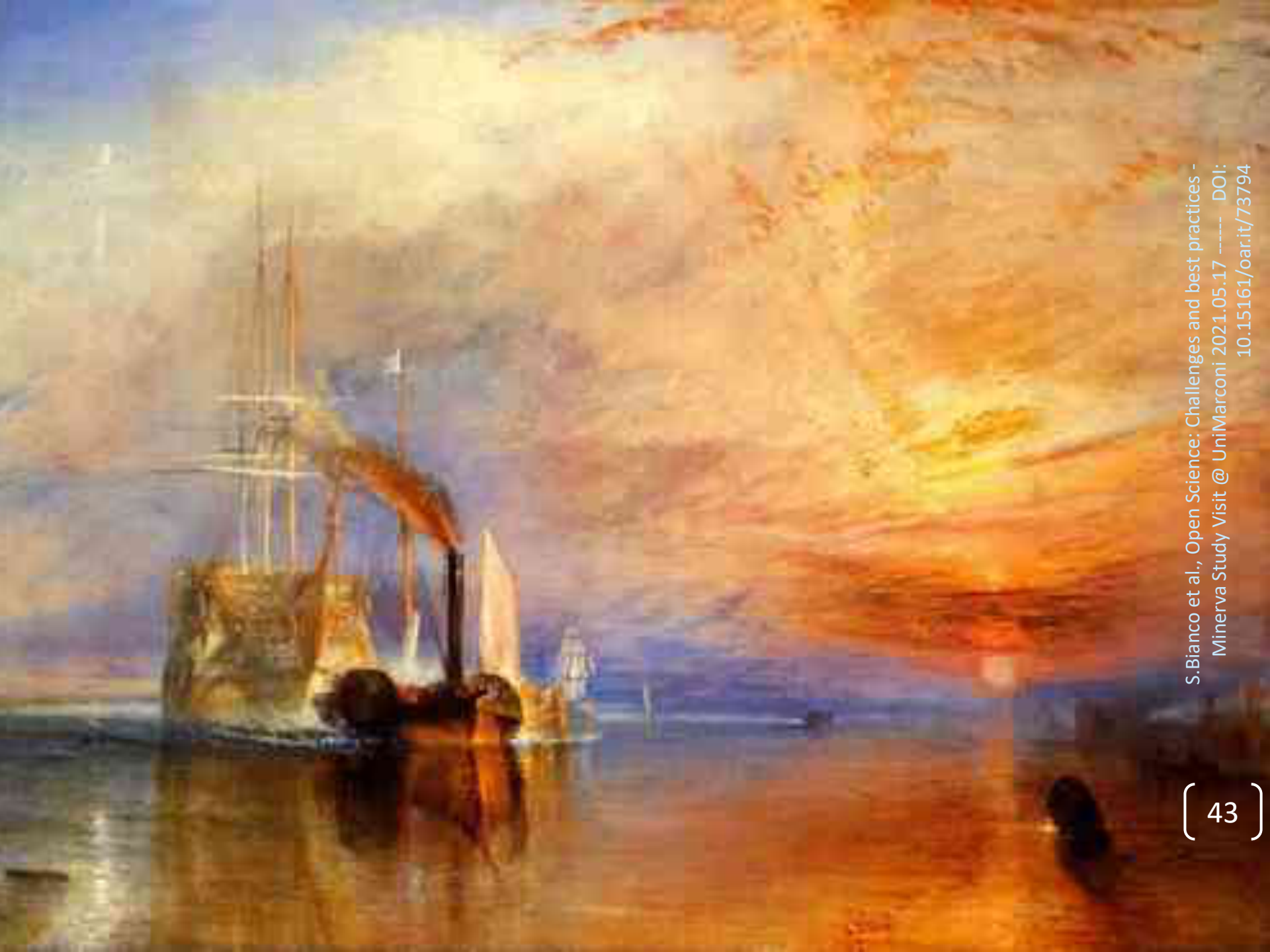
Susanna Terracini (Univ. Torino), former member of ANVUR and EC member of EMS

.. .. .

- <https://www.gssi.it/seminars/seminars-and-events-2020/item/9917-workshop-on-green-open-access-transformative-agreements-and-plans>

Conclusions/Suggestions

- Do not use IF for research evaluation [Universities, Ministry]
- Increase of subscription prices unbearable, subscription market is rigid
- Pay-to-publish (APC) model in principle is less rigid, but
 - must be monitored carefully
 - when negotiating, obtain fee waivers for unfunded Universities
- Many new projects (scoap3, oa2020, planS, ...)
- Europ. Commission: new Horizon Europe model grant agreement demands deposit of AAM in repository
- INFN priority is green OA (although we have subscribed Transformative Agreements with CRUI, CNR, etc)
 - Mandatory, simple, single deposit on openaccessrepository.it
- Non-APC, Open Access models very interesting
 - Subscribe 2 Open
- Authors:
 - Beware of predatory journals !
 - Beware not to give your data to publishers !
 - Never transfer your rights on the AAM to the publisher
 - Always deposit immediately your AAM in your open repository



**Il molo di Calais
con pescatori
del 1803
Olio su tela
172x240cm**

**National
Gallery - Londra**



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Resources

- <https://www.coalition-s.org/coalition-s-develops-rights-retention-strategy/>
- Report and Toolkit to Support Learned Society Publishers Transition to Immediate Open Access
<https://doi.org/10.6084/m9.figshare.c.4561397>
- <https://www.coalition-s.org/plan-s-funders-implementation/>
- <https://www.coalition-s.org/faq/>
- Diamond OA – In-depth Report (2021) <https://www.coalition-s.org/diamond-unearthed-shining-light-on-community-driven-open-access-publishing/>
- S.Bianco and L.Patrizii, PLAN S and other progress for Open Access to knowledge, SCIRES 2020 <http://dx.doi.org/10.2423/i22394303v10Sp59>