Open Access initiatives at CERN

Jens Vigen, CERN Scientific Information Service

Joint ICTP-IAEA-UNESCO Workshop on New Trends for Science Dissemination

ICTP, Trieste, 26-28 September 2011

CERN: European Organization for Nuclear Research

- The world leading HEP laboratory, Geneva (CH)
- 2200 staff (mostly engineers, administrators/services)
- 10 000 users (physicists from 580 institutes in 85 countries)
- 3 Nobel prizes (Accelerators, Detectors, Discoveries)
- Invented the web 
- The home of the LHC machine
- Director General strong advocate of Open Access
- Runs a 1-million objects Digital Library



CERN Convention (1953): *ante-litteram* Open Access manifesto

"… the results of its experimental and theoretical work shall be published or otherwise made generally available"

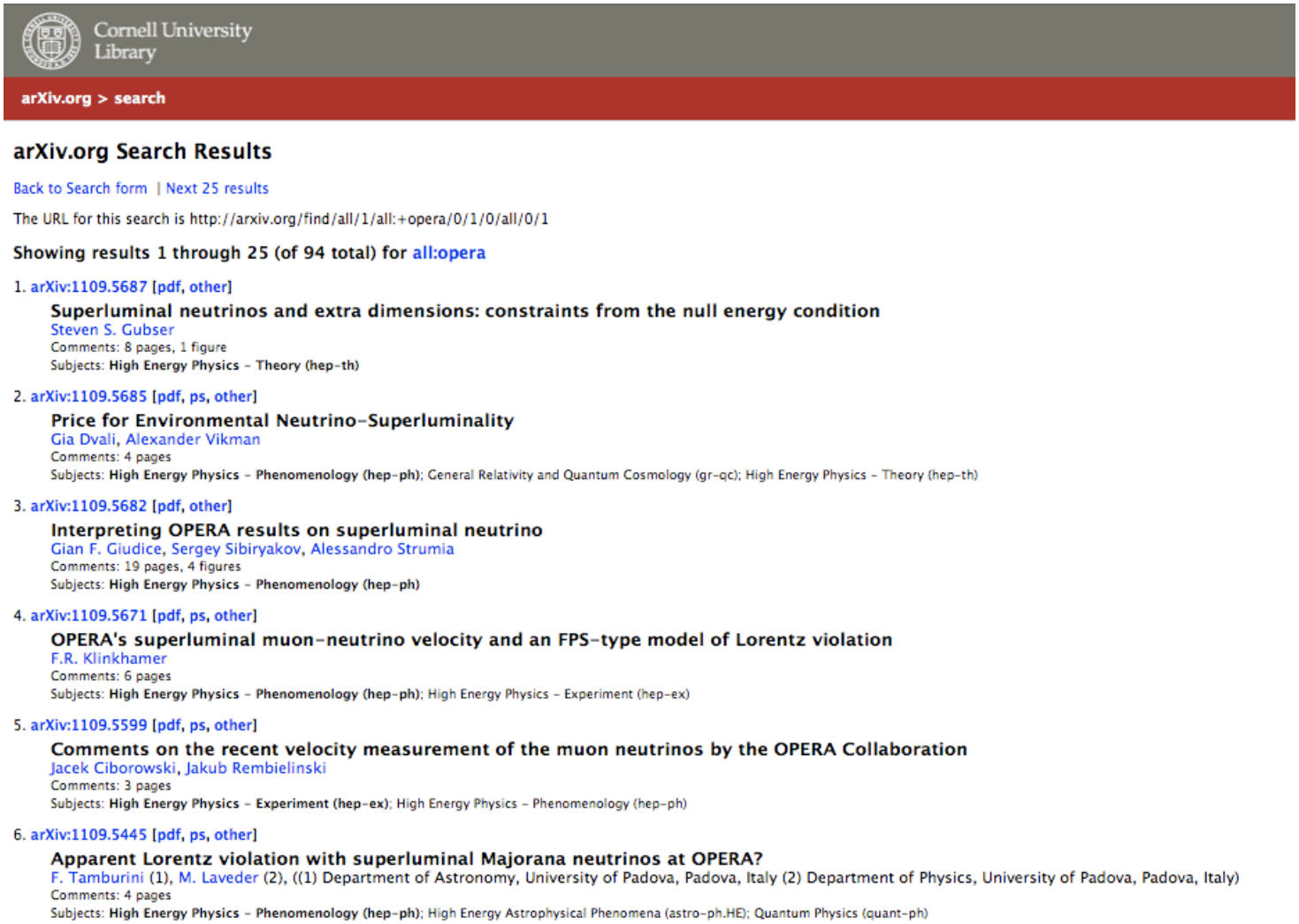
Superluminal neutrinos?

Measurement of the neutrino velocity with the OPERA detector in the CNGS beam

T. Adam[a], N. Agafonova[b], A. Aleksandrov[c,l], O. Altinok[d], P. Alvarez Sanchez[e], S. Aoki[f], A. Ariga[g], T. Ariga[g], D. Autiero[h], A. Badertscher[i], A. Ben Dhahbi[g], A. Bertolin[j], C. Bozza[k], T. Brugière[h], F. Brunet[l], G. Brunetti[h,m,2], S. Buontempo[c], F. Cavanna[n], A. Cazes[h], L. Chaussard[h], M. Chernyavskiy[o], V. Chiarella[p], A. Chukanov[q], G. Colosimo[r], M. Crespi[r], N. D'Ambrosio[s], Y. Déclais[h], P. del Amo Sanchez[l], G. De Lellis[t,c], M. De Serio[u], F. Di Capua[c], F. Cavanna[p], A. Di Crescenzo[t,c], D. Di Ferdinando[v], N. Di Marco[s], S. Dmitrievsky[q], M. Dracos[a], D. Duchesneau[l], S. Dusini[j], J. Ebert[w], I. Eftimiopolous[e], O. Egorov[x], A. Ereditato[g], L.S. Esposito[i], J. Favier[l], T. Ferber[w], R.A. Fini[u], T. Fukuda[y], A. Garfagnini[z,j], G. Giacomelli[m,v], C. Girerd[h], M. Giorgini[m,v,3], M. Giovannozzi[e], J. Goldberg[aa], C. Göllnitz[w], L. Goncharova[o], Y. Gornushkin[q], G. Grella[k], F. Grianti[ab,p], E. Gschewentner[e], C. Guerin[h], A.M. Guler[d], C. Gustavino[ac], K. Hamada[ad], T. Hara[f], M. Hierholzer[w], A. Hollnagel[w], M. Ieva[u], H. Ishida[y], K. Ishiguro[ad], K. Jakovcic[ae], C. Jollet[a], M. Jones[e], F. Juget[g], M. Kamiscioglu[d], J. Kawada[g], S.H. Kim[af,4], M. Kimura[y], N. Kitagawa[ad], B. Klicek[ae], J. Knuesel[g], K. Kodama[ag], M. Komatsu[ad], U. Kose[j], I. Kreslo[g], C. Lazzaro[i], J. Lenkeit[w], A. Ljubicic[ae], A. Longhin[p], A. Malgin[b], G. Mandrioli[v], J. Marteau[h], T. Matsuo[y], N. Mauri[p], A. Mazzoni[r], E. Medinaceli[z,j], F. Meisel[g], A. Meregaglia[a], P. Migliozzi[c], S. Mikado[y], D. Missiaen[e], K. Morishima[ad], U. Moser[g], M.T. Muciaccia[ah,u], N. Naganawa[ad], T. Naka[ad], M. Nakamura[ad], T. Nakano[ad], Y. Nakatsuka[ad], D. Naumov[q], V. Nikitina[ai], S. Ogawa[y], N. Okateva[o], A. Olchevsky[s], O. Palamara[s], A. Paoloni[p], B.D. Park[af,5], I.G. Park[af], A. Pastore[ag,u], L. Patrizii[v], E. Pennacchio[h], H. Pessard[l], C. Pistillo[g], N. Polukhina[o], M. Pozzato[m,v], K. Pretzl[g], F. Pupilli[s], R. Rescigno[k], T. Roganova[ai], H. Rokujo[f], G. Rosa[aj,ac], I. Rostovtseva[x], A. Rubbia[i], A. Russo[c], O. Sato[ad], Y. Sato[ak], A. Schembri[s], J. Schuler[a], L. Scotto Lavina[g,6], J. Serrano[e], A. Sheshukov[q], H. Shibuya[y], G. Shoziyoev[ai], S. Simone[ah,u]

Open Access – quick as the light

eighteen commenting papers, five days later, out on arXiv



Cornell University Library

arXiv.org > search

arXiv.org Search Results

Back to Search form | Next 25 results

The URL for this search is http://arxiv.org/find/all/1/all:+opera/0/1/0/all/0/1

Showing results 1 through 25 (of 94 total) for all:opera

1. arXiv:1109.5687 [pdf, other]
   Superluminal neutrinos and extra dimensions: constraints from the null energy condition
   Steven S. Gubser
   Comments: 8 pages, 1 figure
   Subjects: **High Energy Physics - Theory (hep-th)**

2. arXiv:1109.5685 [pdf, ps, other]
   Price for Environmental Neutrino-Superluminality
   Gia Dvali, Alexander Vikman
   Comments: 4 pages
   Subjects: **High Energy Physics - Phenomenology (hep-ph)**; General Relativity and Quantum Cosmology (gr-qc); High Energy Physics - Theory (hep-th)

3. arXiv:1109.5682 [pdf, other]
   Interpreting OPERA results on superluminal neutrino
   Gian F. Giudice, Sergey Sibiryakov, Alessandro Strumia
   Comments: 19 pages, 4 figures
   Subjects: **High Energy Physics - Phenomenology (hep-ph)**

4. arXiv:1109.5671 [pdf, ps, other]
   OPERA's superluminal muon-neutrino velocity and an FPS-type model of Lorentz violation
   F.R. Klinkhamer
   Comments: 6 pages
   Subjects: **High Energy Physics - Phenomenology (hep-ph)**; High Energy Physics - Experiment (hep-ex)

5. arXiv:1109.5599 [pdf, ps, other]
   Comments on the recent velocity measurement of the muon neutrinos by the OPERA Collaboration
   Jacek Ciborowski, Jakub Rembielinski
   Comments: 3 pages
   Subjects: **High Energy Physics - Experiment (hep-ex)**; High Energy Physics - Phenomenology (hep-ph)

6. arXiv:1109.5445 [pdf, ps, other]
   Apparent Lorentz violation with superluminal Majorana neutrinos at OPERA?
   F. Tamburini (1), M. Laveder (2), ((1) Department of Astronomy, University of Padova, Padova, Italy (2) Department of Physics, University of Padova, Padova, Italy)
   Comments: 4 pages
   Subjects: **High Energy Physics - Phenomenology (hep-ph)**; High Energy Astrophysical Phenomena (astro-ph.HE); Quantum Physics (quant-ph)

CERN-UNESCO School
on
Digital Libraries

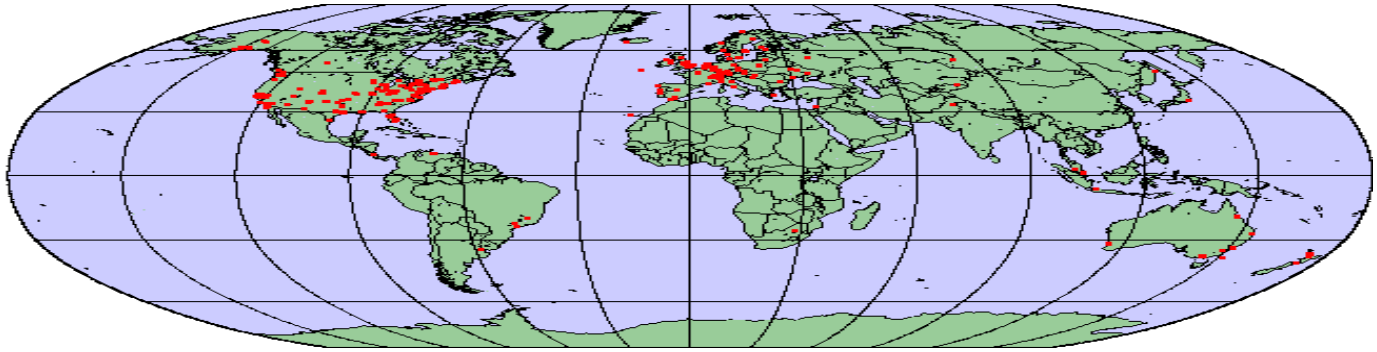


Dakar, Senegal, November 2011
Rabat, Morocco, November 2010
Kigali, Rwanda, September 2009

All sessions followed up by in-depth training for champions at CERN

Digital libraries

- Over the last 20 years academic institutions in Europe, North America and Japan have invested large resources in establishing digital libraries
- CERN has developed one of the flagships, Invenio, in the suite of open source software for managing large collecti



African institutions have the same needs and interests;
No need to reinvent the wheel
African universities can catch up in a minimum of time

Strength of digital libraries

Knowledge and technology transfer

- Putting digital libraries in place will
  - ✓ facilitate access to information for African researchers
  - ✓ augment the visibility of African research to the continent itself, and obviously also to the rest of the world

- Self sustained installations ensured by
  - ✓ in-depth training in running and filling the repository
  - ✓ starting by building a strong knowledge base in selected regions

CERN Digital-Library/Digital-Conference solutions

INVENIO

CERN

Navigable collection tree

- Documents organized
- Re ar and virtual collection trees
- or each collection
- At CERN, about 1,000,000

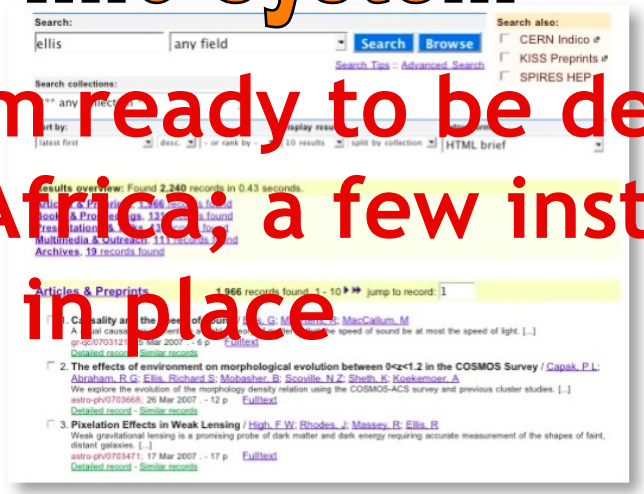
Digital Library

1-million records

Backbone of future

HEP Info System

- Specifically designed indexes to provide Google-like search speed for repositories of up to 1,500,000 records
- Parallel searching of external collections
- Customizable simple and advanced search interfaces
- Combined metadata, citation and fulltext search in one go
- Results clustering by collection
- Flexible ranking capabilities



A system ready to be deployed across Africa; a few installations already in place

INDICO

Integrated Digital Conference

INDICO is a new web application for organising meetings. This software allows you to schedule events, from simple talks to complex conferences with many sessions and contributions. It includes an advanced user delegation mechanism. It also allows

- covers the full event organization
- support different types of event
- OO designed and Python powered
- EU funded product (IST-2001-34506)
- compliant to the protocol for metadata harvesting
- free software

Meeting organisation

From O(1) to O(1000):

- participants

- talks/slides

- writeup

- minutes

Try the CERN server : http://indico.cern.ch

Visit the project website : http://indico.web.cern.ch

Contact us : indico-project@cern.ch

Indico is a project of the CERN Document Server

LHC physics is all Open Access

CERN publishing policies

- Official mandate for deposit in place “since ever”
  - Currently CERN Operational Circular No. 6 (2001)
  - Further stressed by various additional policy documents
- Practically speaking; HEP has full green OA coverage
- Recent policy for publishing of experimental physics
  - Open Access
  - No transfer of copyright
  - CC-BY-3.0 license

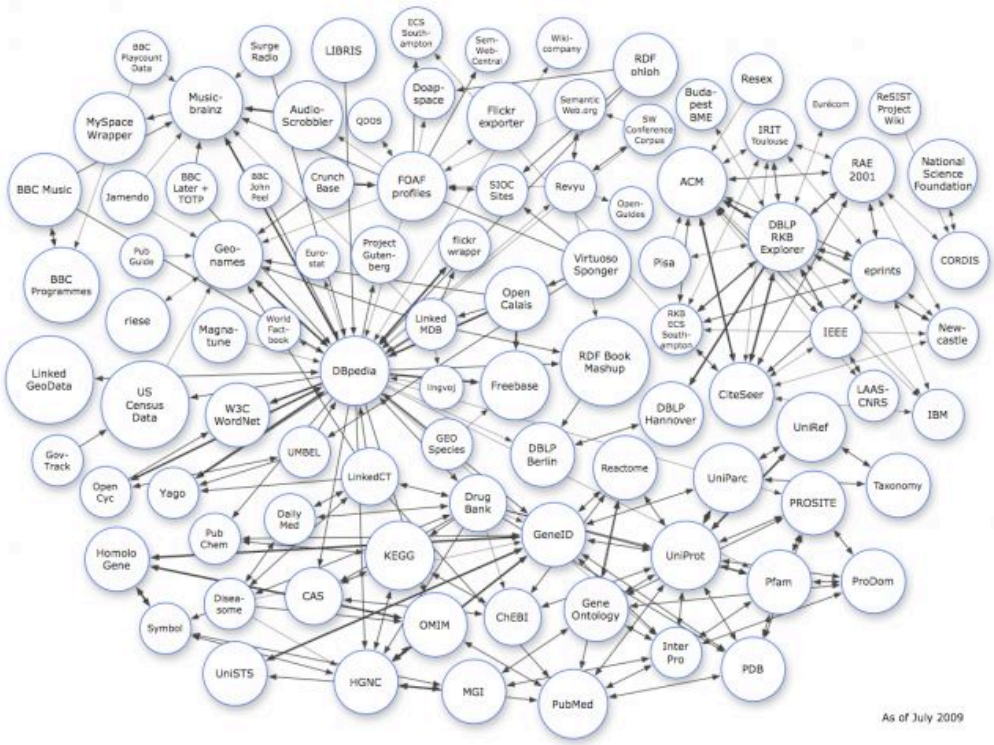
A strong request from the scientists

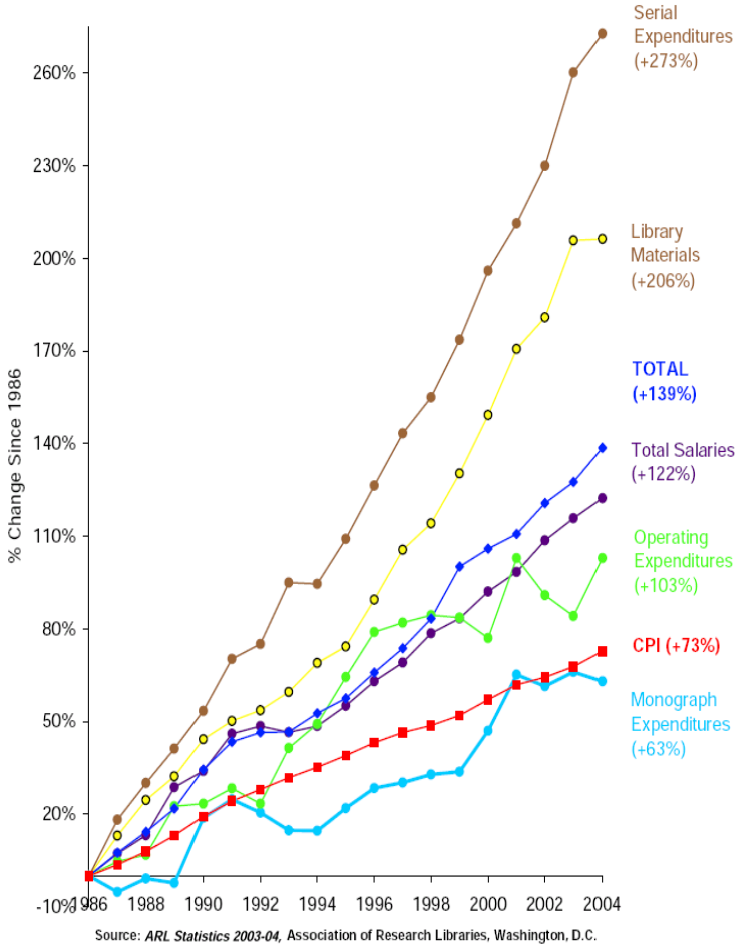
"We strongly encourage the usage of electronic publishing methods for our publications and support the principles of Open Access Publishing, which includes granting free access of our publications to all. Furthermore, we encourage all our members to publish papers in easily accessible journals, following the principles of the Open Access Paradigm."

4 experimental groups
7000 scientists
from 54 countries

ATLAS; approved on 23rd February 2007
CMS; approved on 2nd March 2007
ALICE; approved on 9th March 2007
LHCb; approved on 12th March 2007

Open Access drivers





Cross section between techn. & phil.

“Full” Open Access
an opportunity for the crowds

- The print era had its natural limitations
- There is no reason to carry any of these limitations forward to the online era
- Today any scientist should have the possibility to read, textmine, remix material and publish without being confronted with any financial or legal barriers

… do authors submit?

Author efforts

A quick reality check on the annual production:

1. ~250 theoretical papers, we capture 0% (!!)
2. ~500 theses, we capture 10% (world average …)
3. ~50 experimental papers, we capture 90%

Library efforts

How can this be compensated for?

1. Import from arXiv ensures 100% coverage for theory
2. Individually e-mailing authors retrospectively, brings the coverage up to 30%, even for theses dating 10 years back
3. Check for CERN authors in publishers feeds, contact the research group or import publishers' version when permitted

Ensuring green OA - promoting gold

Library efforts

1. Targeted action: 13’000 theoretical articles over 57 years
   - Old copies of manuscripts retrieved and scanned from the CERN Archive and private archives of the authors
2. Hunt for theses
3. Encouraging submission to OA journals
   - Special deal for some journals
     - JHEP&JINST, everything originating from CERN is published OA for a symbolic sum
     - NJP, CERN supports authors with the payment of the publication fees
     - PRSTAB, sponsorship ensuring OA without author fees
4. Encouraging conference organizers to use OA outlet for proceedings
5. Preparing SCOAP^3

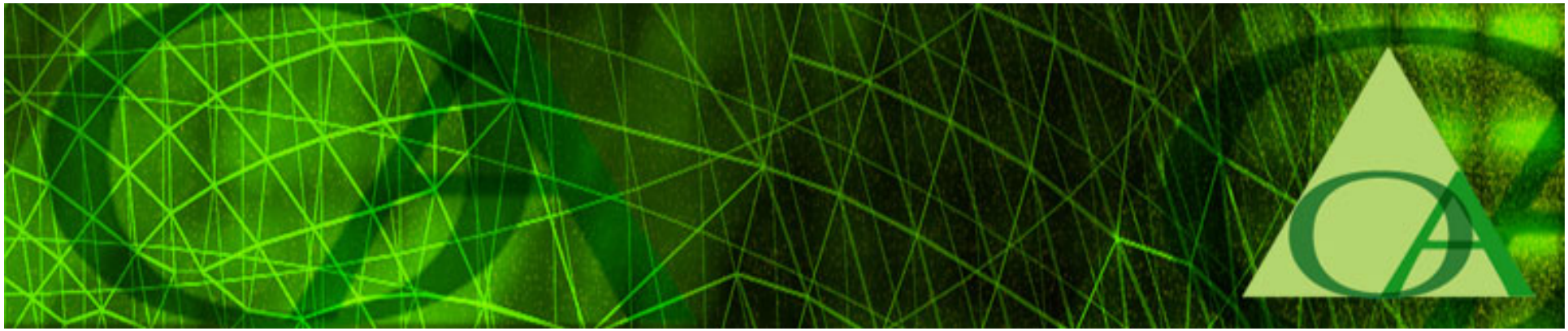
CERN IR 3/4 full; lessons learned

Mandating and advocacy have limits:

- "Top-scientists" tend to ignore both "mandating" and "mandated" librarians
- Authors needs to see an immediate return from their time investment
- Authors get this return (visibility, standing) by submitting to subject repositories, *i.e.* arXiv
- Not all HEP-sub communities submit to arXiv, and we lose the content …
- We observe a different situation for thesis: authors perceive that the IR offers a good preservation, and they are glad to submit theses once asked

Which are the incentives to use a repository for authors?

- Get what they want… to motivate them to go there
- So, give them what they want; tech-push do rarely attract users while user-pull builds communities



346	Salam, A
320	Salam, Abdus
2	Salam, Agus
1	Salam, Ahmad

Salam, Abdus (326 papers)

This is me. Verify my publication list.

Name variants

Salam, Abdus (320)
Salam, A. (4)
Salam, A., (Ed.) (2)

Papers

All papers (326)
Report (326)
Published (232)
Conference (25)
Review (13)
Lectures (5)
Introductory (5)
Book (4)

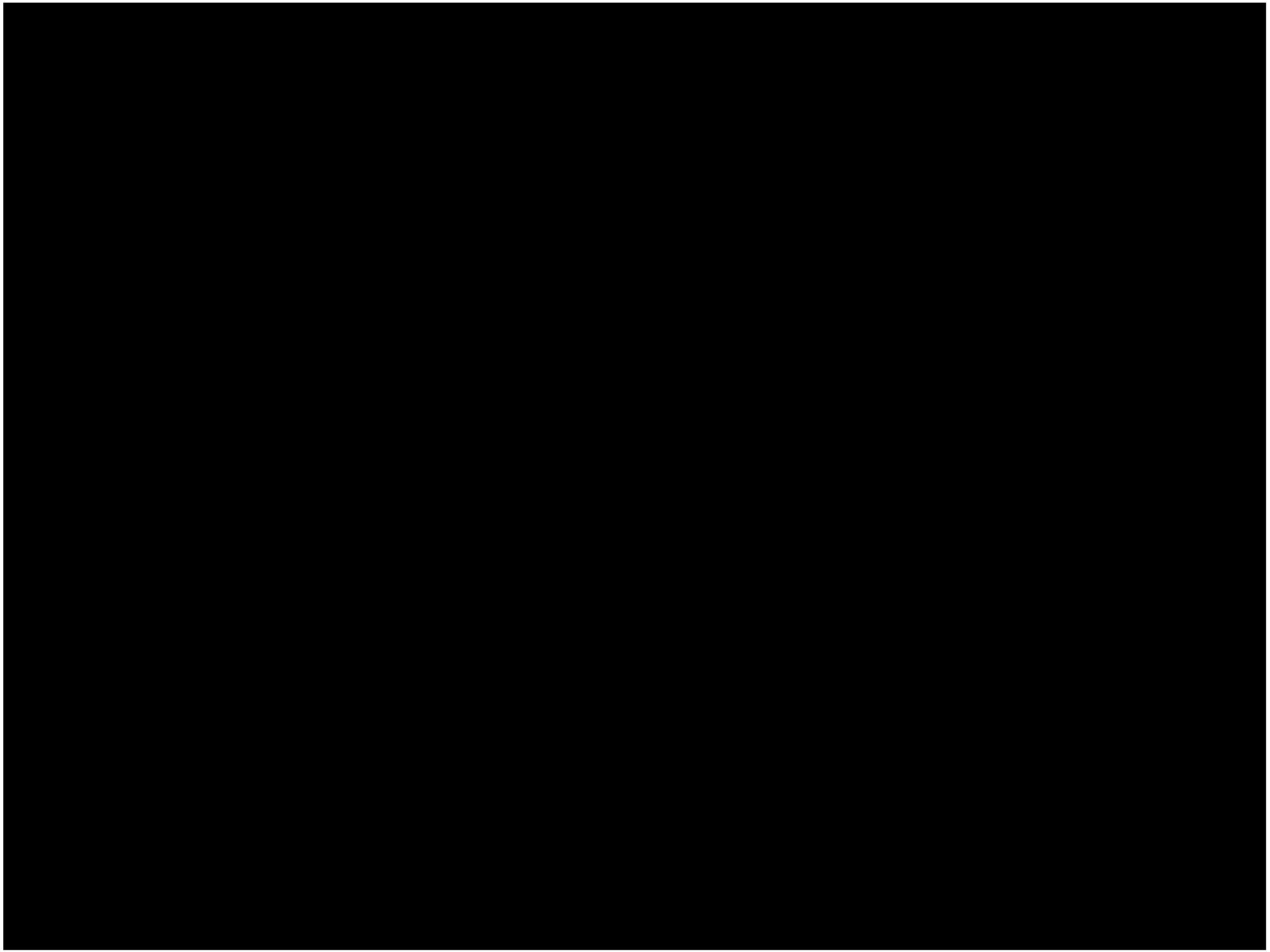
Frequent keywords

Affiliations

ICTP, Trieste (234)
Imperial Coll., London (221)
Cambridge U. (17)
Govt. Coll., Lahore (13)
unknown affiliation (6)
Princeton, Inst. Advanced Study (4)
Rochester U. (2)
Bologna U. (2)
Trieste U. (2)
Cambridge U (1)
MIT (1)

Frequent co-authors

Strathdee, J.A. (118)
Pati, Jogesh C. (42)
Delbourgo, Robert (33)



Aiming for 100% OA coverage

- Institutional and subject repositories goes hand in hand. Ensure interoperability and co-operate to develop the services required by all the partners

- Capture non-submitted papers by:
  - Monitoring publisher feeds
    - In order to be discovered publishers have a strong interest to feed subject repositories
  - Working with OA friendly publishers
    - Allowing storage on institutional web sites
      - In physics: SISSA/IOPP, AIP, APS and IEEE

What is Open Access?
Depending on who is talking …

Some academic and common sense definitions:

- *"free and unrestricted online availability"*

  The Budapest Open Access Initiative

- *"free availability and unrestricted use"*

  Public Library of Science

- *"access to material via the Internet in such a way that the material is free for all users to read and use"*

  Wikipedia

Advantages of Open Access – a simple example

The CERN Large Hadron Collider: Accelerator and Experiments

- Published Open Access as a set of highly specialized articles in a special issue of Journal of Instrumentation (*JINST 3 S08001-S08001*)
- Printed copies, significantly subsidized by CERN, to be made available for distribution to the community
- Highly popular papers; the publisher reported ~55 000 downloads in the first two months!

The HEP journals and our concerns

- Journals are on the way to lose (have lost?) their role as vehicle of scholarly communication in HEP
- But … still evaluations of institutes and (young) researchers are based on high-quality peer-reviewed journals. Journals remain the communication line with officialdom
- The HEP community needs high-quality journals. The main role of journals is to assure high-quality peer-review. Implicitly libraries support this role by purchasing subscriptions, as the scientists reads the papers off arXiv anyhow
- HEP is an “all-arXiv discipline”: journals at high cancellation risk by large multidisciplinary libraries. At CERN only 1000 full-text downloads/year for leading HEP journals!

Accelerator physics made it already

A complete Open Access Publishing solution

- Reports, preprints available through institutional repositories
  Financed via libraries, e.g. the CERN Document Server
- Conferences published through JACoW (supported by IEEE)
  Financed via conference budgets, e.g. EPAC
- Peer-reviewed articles published in
  PRST-AB (1998 – today) and
  Particle Accelerators (1970-2000)
  Financed via special sponsorship

Free access to everyone?

Some journals are called hybrid journals: they publish both open access and not open access articles.

Author or the related institution may have to pay for an article to be open access. This is called the author pays model.

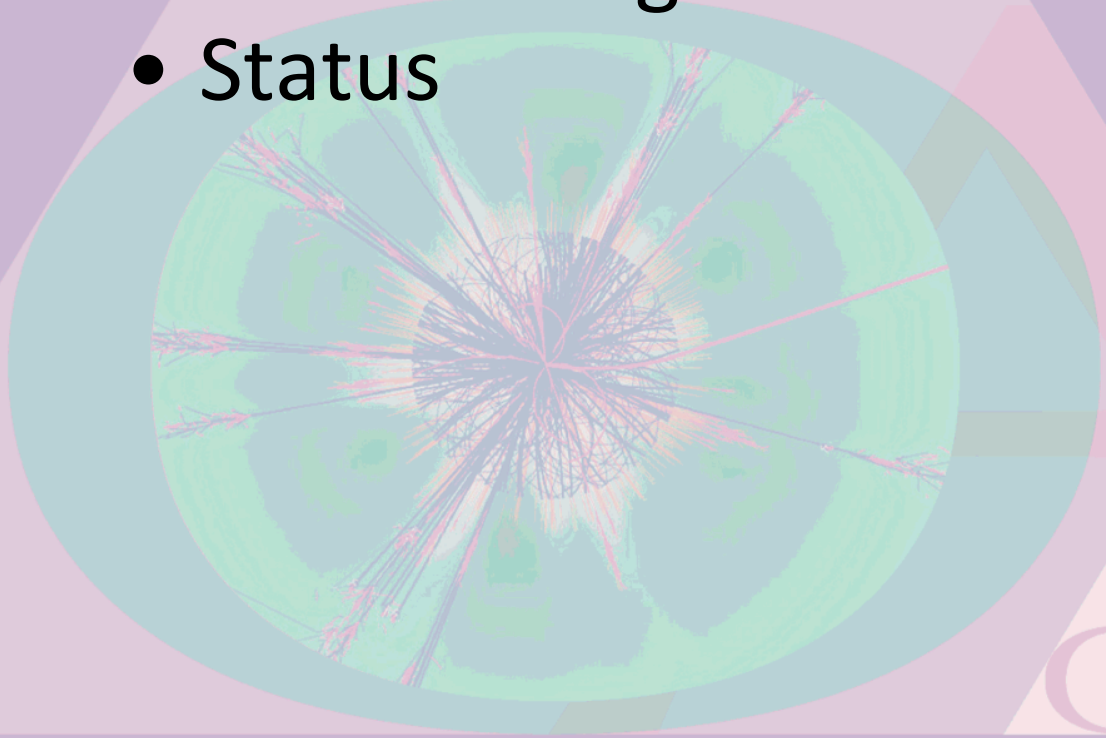
Depending on the journal, the articles may be freely accessible right away or they may become open access later. after a certain period e.g. one year. This is called delayed open access.

Truths about Open Access

Open Access in not about making scholarly literature costless, but to find out and exploit better ways to pay the publishing costs than by charging readers and thus creating access barriers!

SCOAP^3

- The SCOAP^3 model
- Fund-raising
- Status

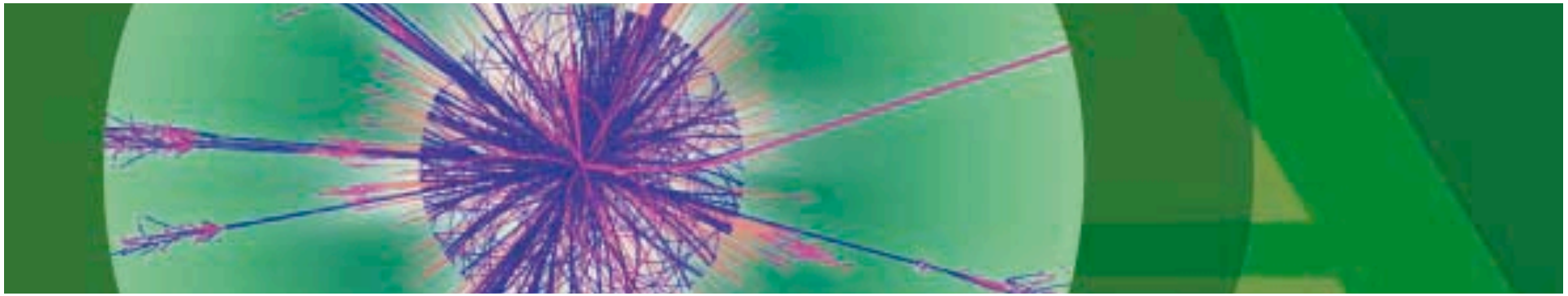


SCOAP^3: opportunity for change

- Libraries can make Open Access happen !
- Invest subscription money in a smarter way
- Chart where repositories, journals and OA meet
- Anticipate expectations of faculty/students
- Generate change in Scholarly Communication

The SCOAP^3 model

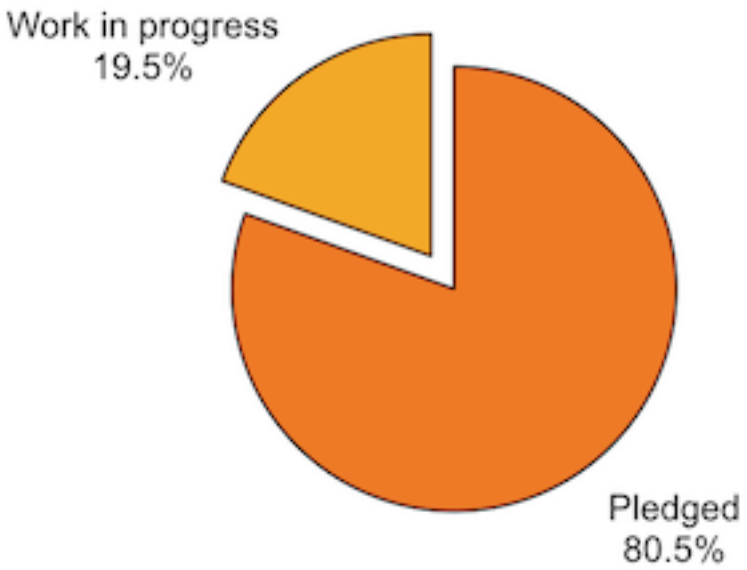
- Convert existing top-quality HEP journals to OA
- Libraries re-direct subscriptions to SCOAP^3
- SCOAP^3 pays centrally for peer-review service
- Price-per-article established by call for tender
- Articles are Open Access (re-use, repositories)



SCOAP^3 facilitates scientists from developing countries to participate on an equal footing

SCOAP3 Partnerships Sep 2011

80 %of the budget envelope pledged



Intense conversations with Brazil, Russia, China and India!

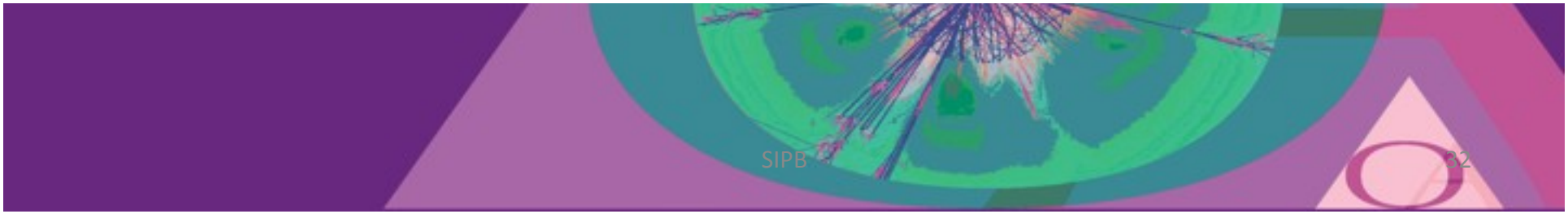
Austria	Italy
Belgium	Netherlands
CERN	Norway
Denmark	Portugal
France	Romania
Finland	Slovakia
Germany	Sweden
Greece	Switzerland
Hungary	Spain
	JISC (UK)
Australia	Israel, Turkey
Morocco	Korea and Japan

Canada
>150 U.S. libraries (95%)

Current status

1. Reach critical mass:
   - completing the U.S. and European pledges
   - partnerships in Africa, Asia and South America
2. Convene international Governing Board
3. Engage publishers in a call for tender (ongoing)
4. Go/No-Go decision, contracts and MoU's

Peruse the excellent interim agreements for LHC papers meanwhile.



Myths about Open Acces

~~Myth 1: OA is not compatible with peer review.~~

Truth: There is no hinder for peer review in OA. In fact, all the major scientific and scholarly OA journals insist on its importance!

Myths about Open Acces

Myth 2: OA publishing is free of charge.

Truth: Publishing an OA journal requires resources as does the conventional publishing. But OA literature is often less expensive to produce.

Myths about Open Acces

Myth 3: Publishing in an OA journal is always free for author.

Truth: This depends on the business model of the journal has chosen. Some journals charge the authors a certain fee to make their articles OA. Some other journals do not charge the authors but acquire their ffunding in other ways.

II Open Access

Who is involved / interested in Open Access?

Researchers and Scholars

Researchers, scientists and students gain access to a wider amount of results and information and enjoy a larger public to their results.

Researchers and Scholars

Access to the most recent research spreads information what the others are doing. This prevents studying something someone has already studied. Not making things twice in vain saves money and time!

Policy Makers

Basic research is often funded by the public resources so policy makers are willing to make results available.

Professionals

Diverse professionals (e.g. medical doctors, teachers) can exploit the most recent research in their work.

Libraries

Libraries can offer access to a wider range of journals, books and other material to their users.

Who is involved / interested in Open Access

People sharing and consuming information

Journalists and publics (e.g. Patient associations may be interested in the latest research)

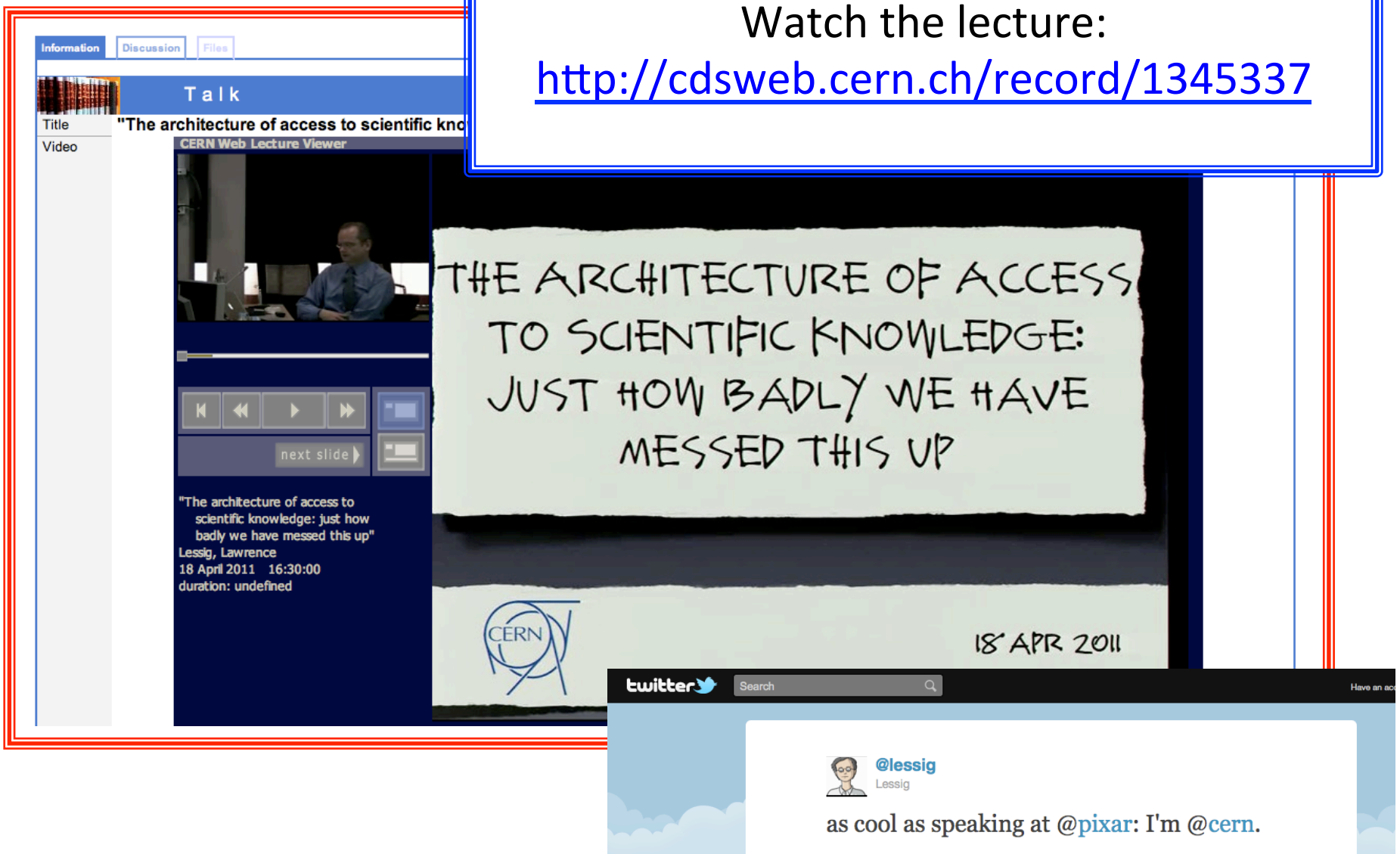
Knowledge becomes public as well as widely accessible and available

Citizen science

Prof. Lawrence Lessig, Harvard Univ.:

"CERN has taken the lead in supporting Open Access"

Watch the lecture:
http://cdsweb.cern.ch/record/1345337



First results of the SOAP Project
(What 40’000 scientists think of you)

Suenje Dallmeier-Tiessen, Bettina Goerner, Robert Darby, Jenni Hyppoelae, Peter Igo-Kemenes, Deborah Kahn, Simon Lambert, Anja Lengenfelder, Chris Leonard, Salvatore Mele, Panayiota Polydoratou, David Ross, Sergio Ruiz-Perez, Ralf Schimmer, Mark Swaisland and Wim van der Stelt

BMC, CERN, MPDL, SAGE, Springer, STFC

Presented by
Salvatore Mele/CERN, SOAP project co-ordinator

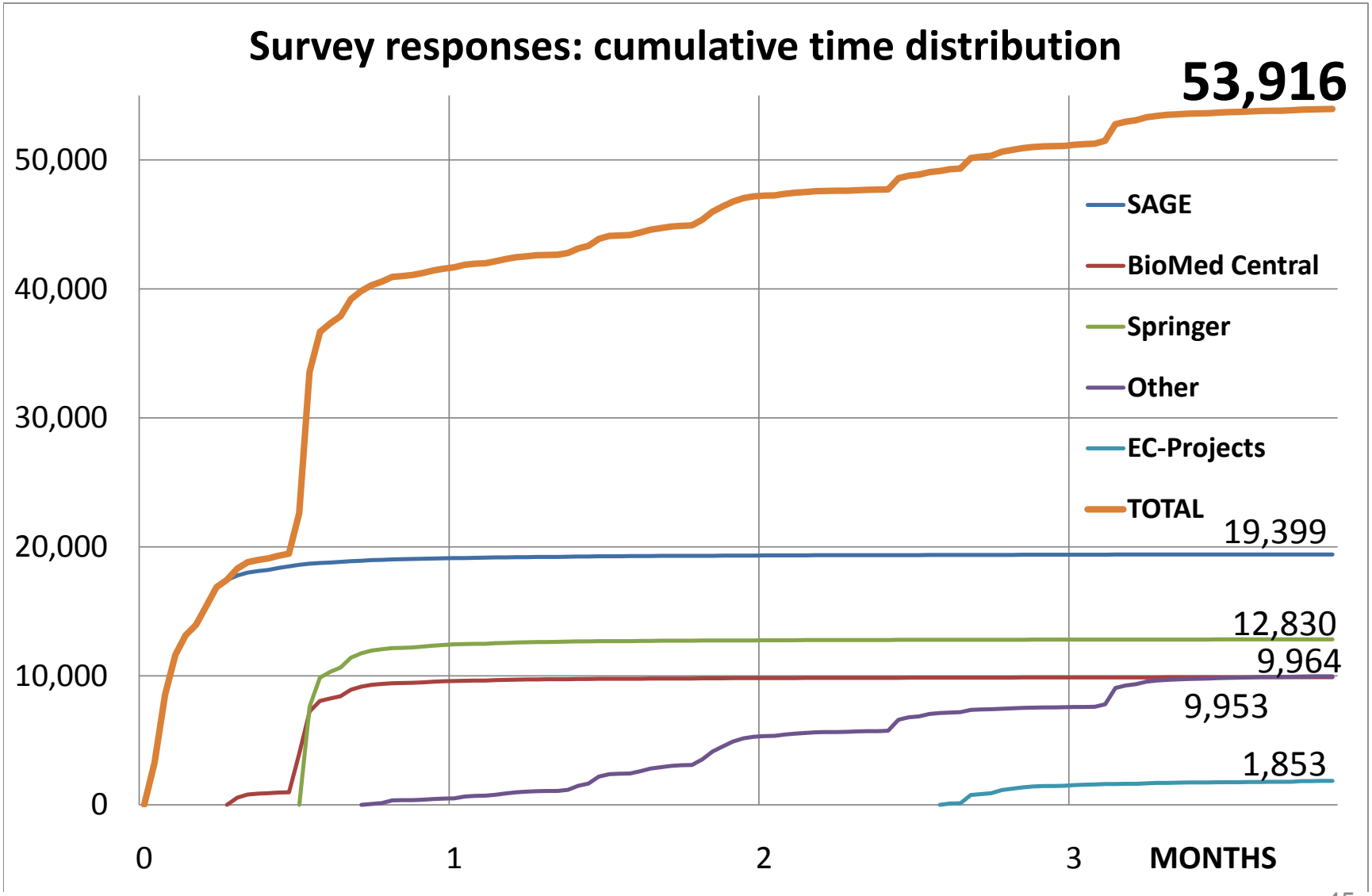
COASP | 2nd Conference on Open Access Scholarly Publishing | Prague | 22-24 August 2010

SEVENTH FRAMEWORK PROGRAMME

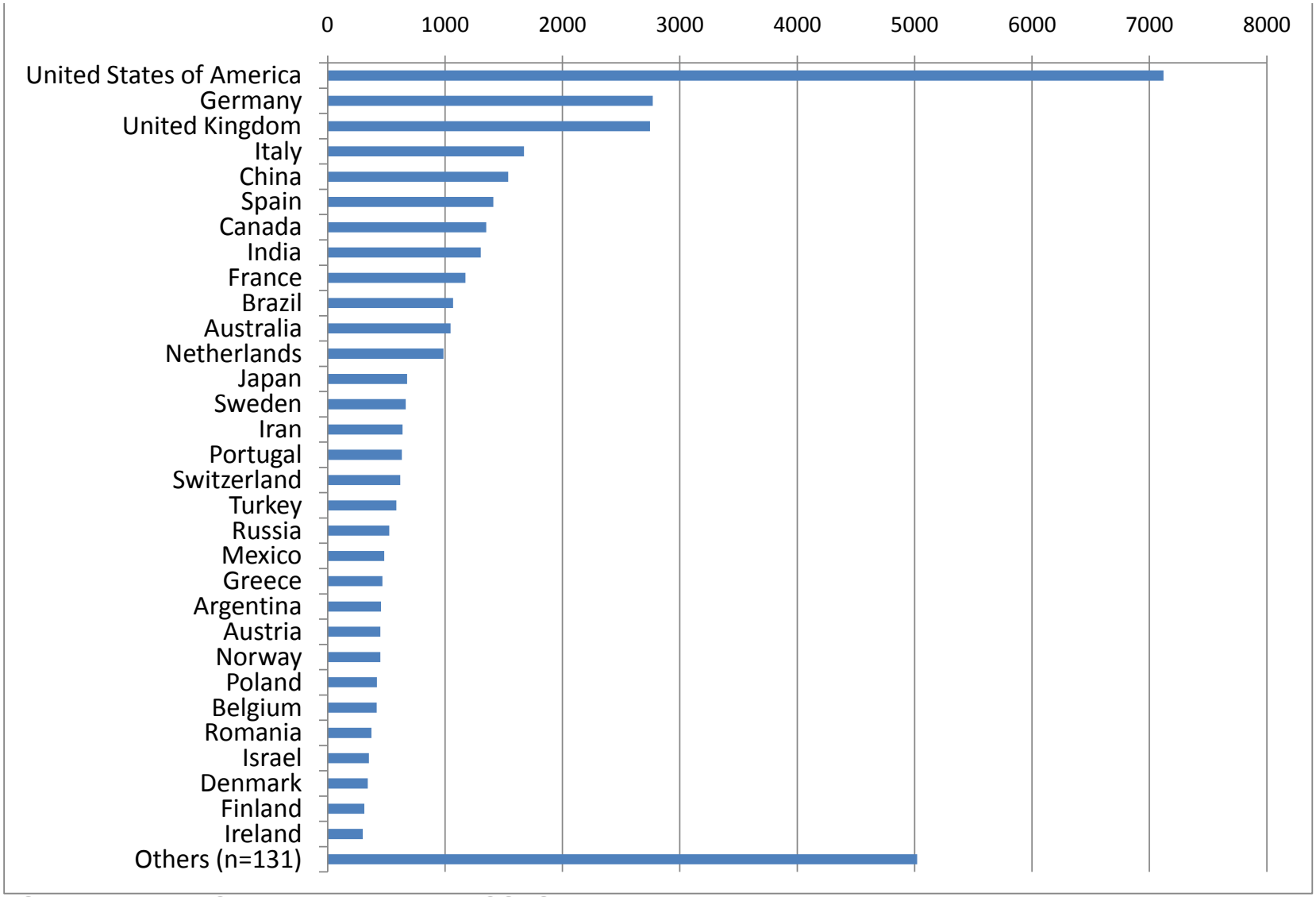
SCIENCE IN SOCIETY

The SOAP survey

Study on Open Access Publishing

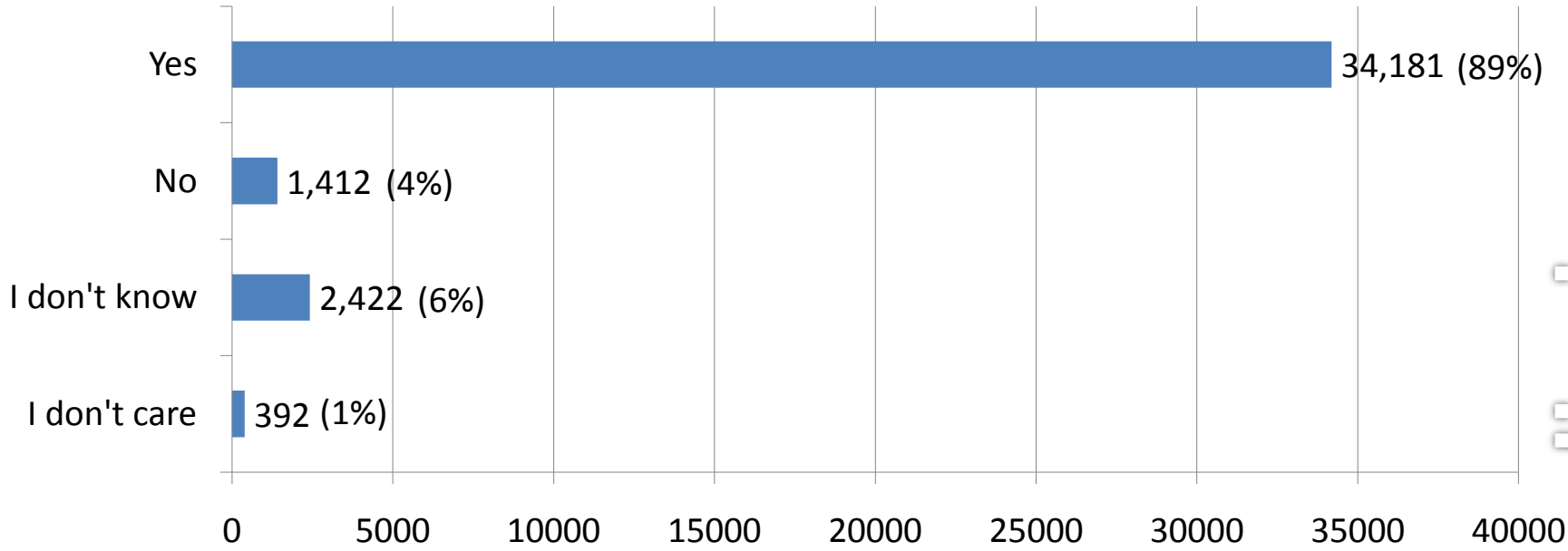


Distribution by country



Preliminary

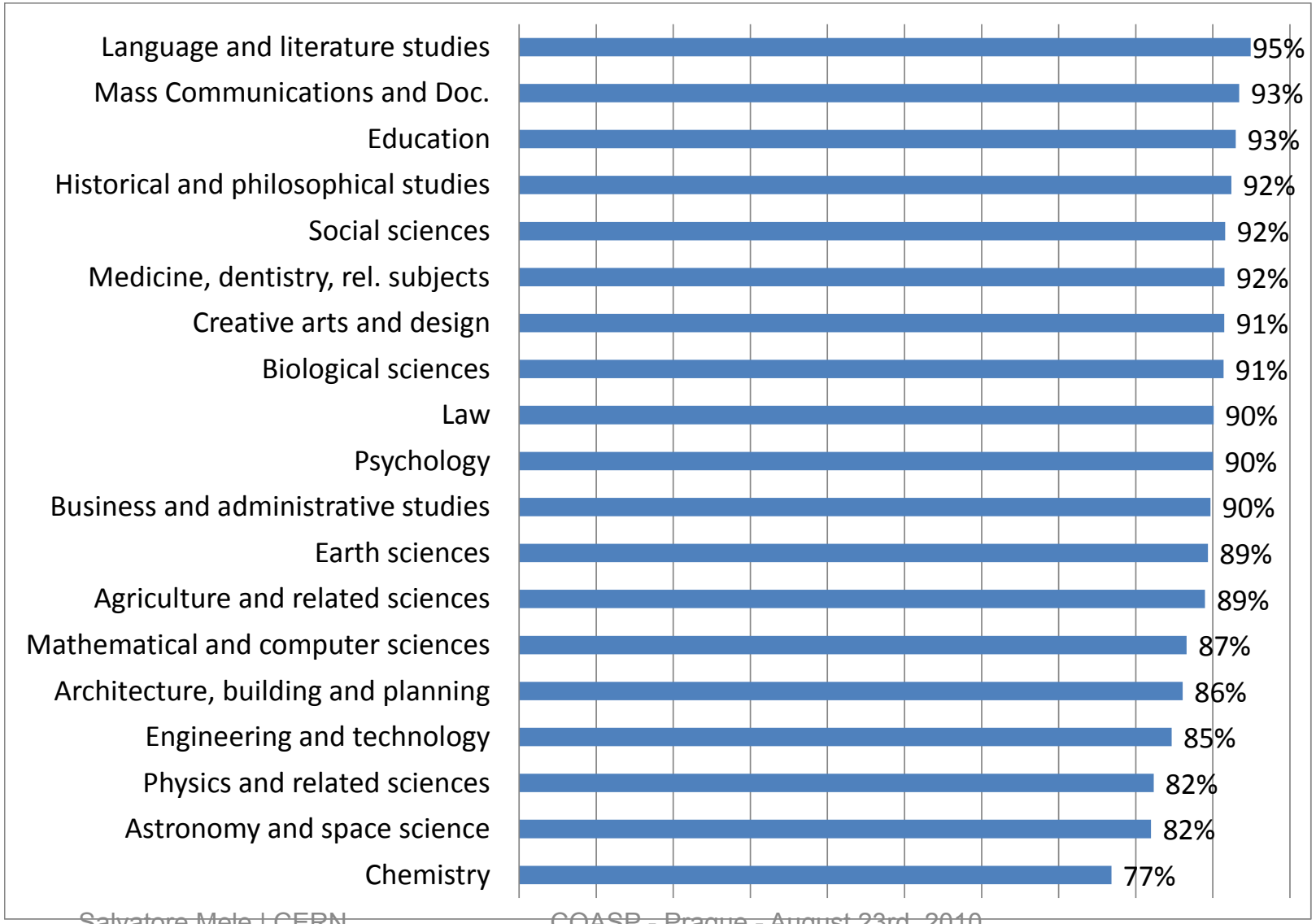
Would OA journals be beneficial for your field?



Preliminary

No large differences according to seniority and number of articles

Would OA journals be beneficial for your field?

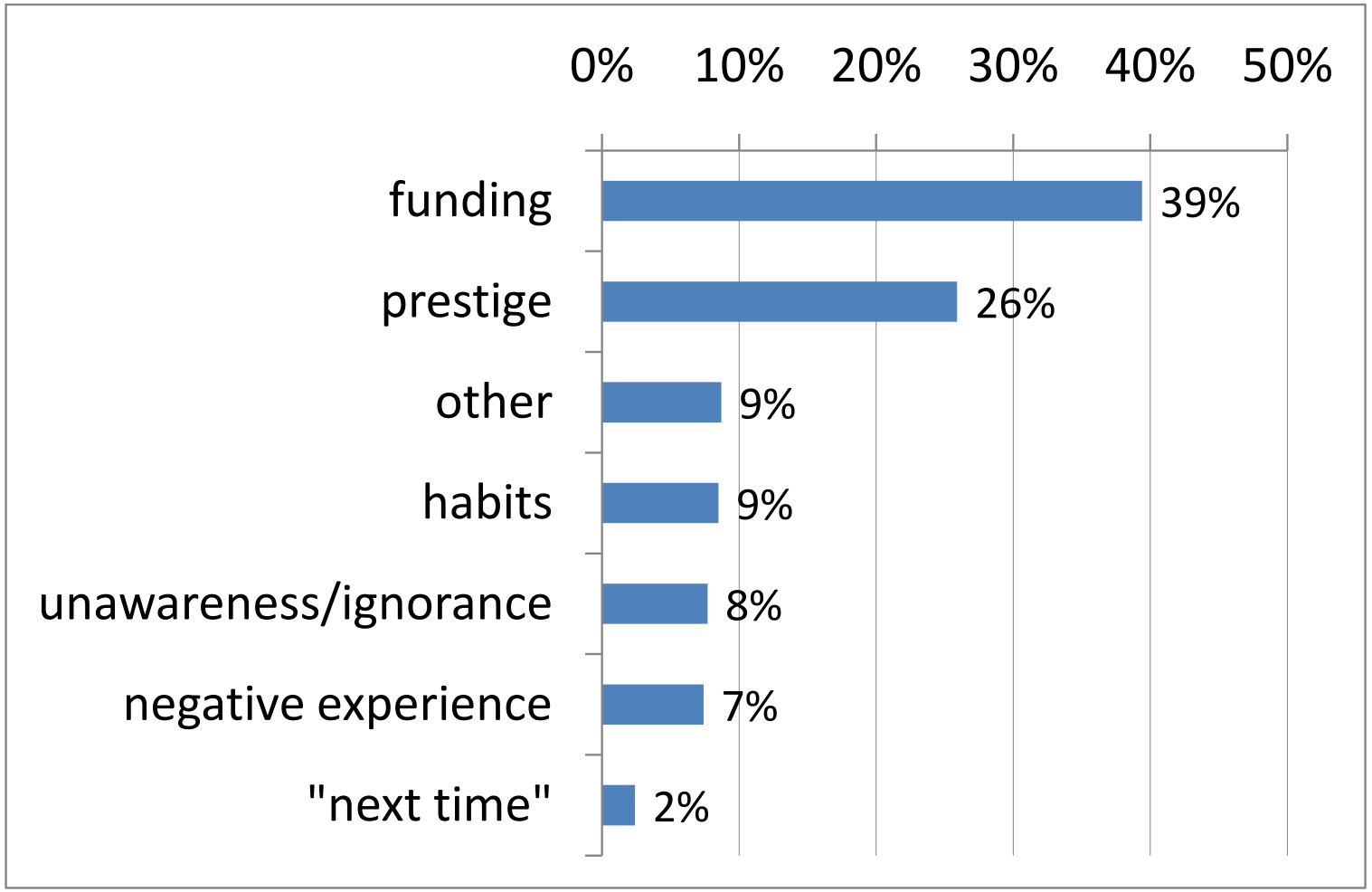


Yes

Preliminary

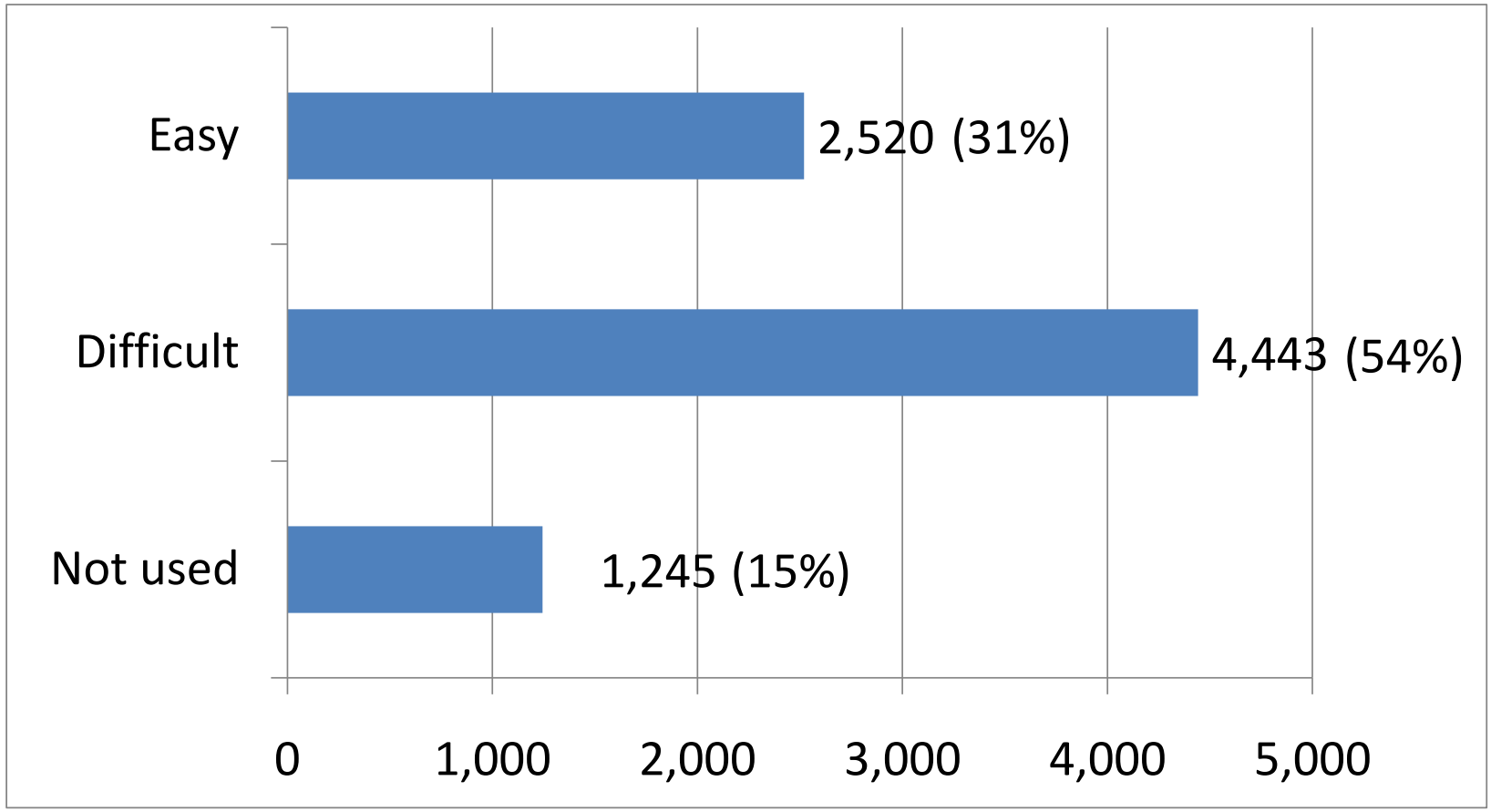
Was there a reason not to publish OA?

42% have a reason; >4000 answers; 60’000 words



Preliminary

How easy was it to obtain funds?



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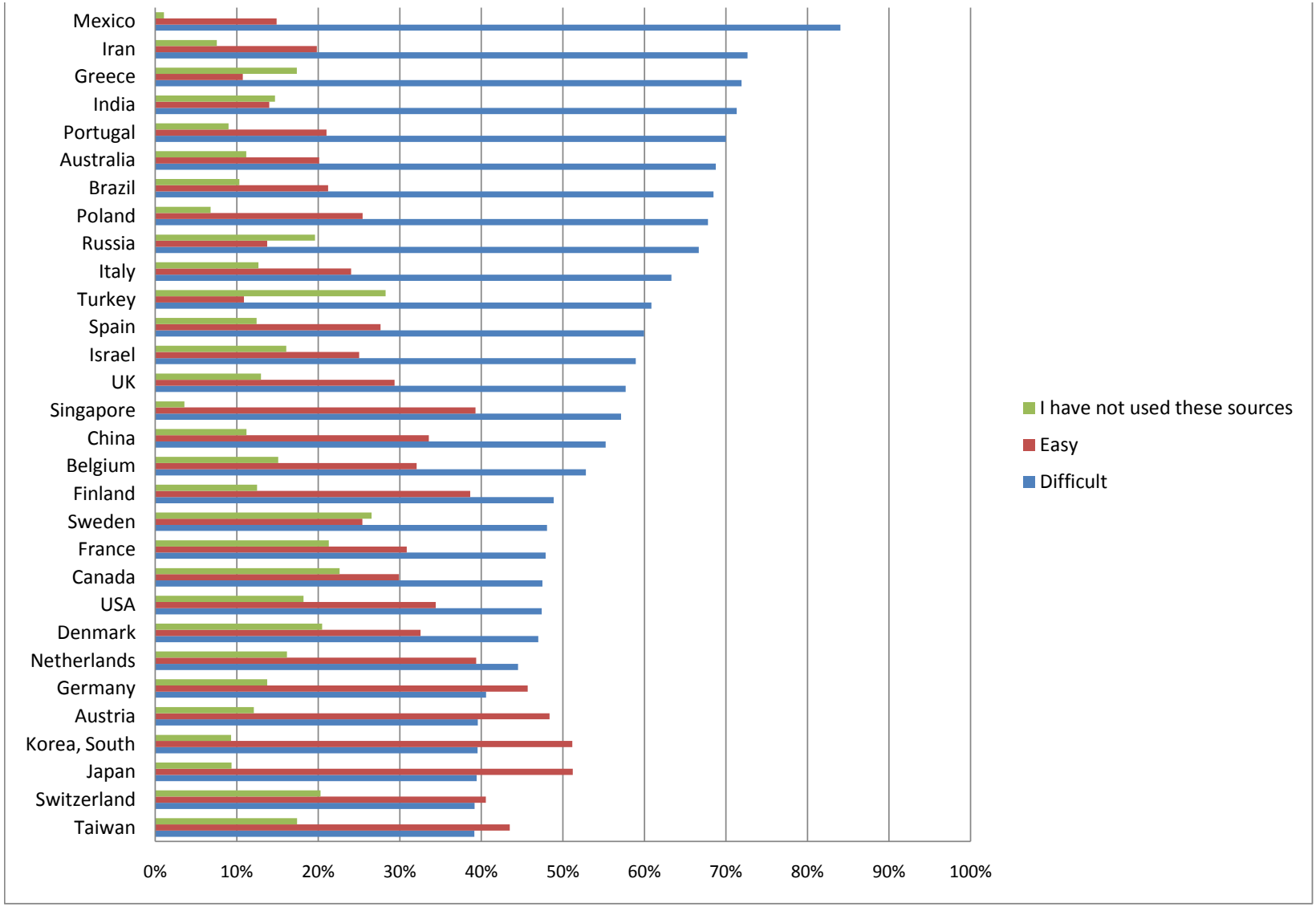


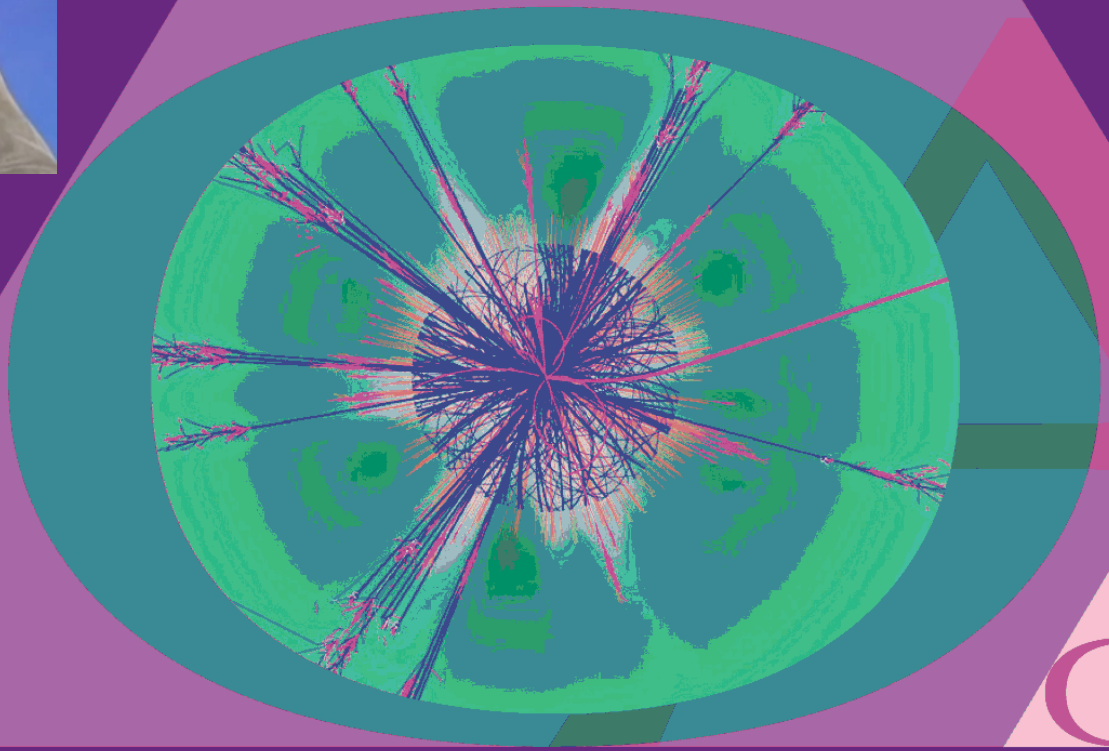
Preliminary

Nelly Kroes, Vice-President of the European Commission:

"SCOAP is key"

SCOAP^3 :

- Converting all journals to Open Access
- Ensure a sustainable publishing model



http://tinyurl.com/Kroes-SCOAP3

Open Access is not equal to e-Science

BUT

e-Science will require

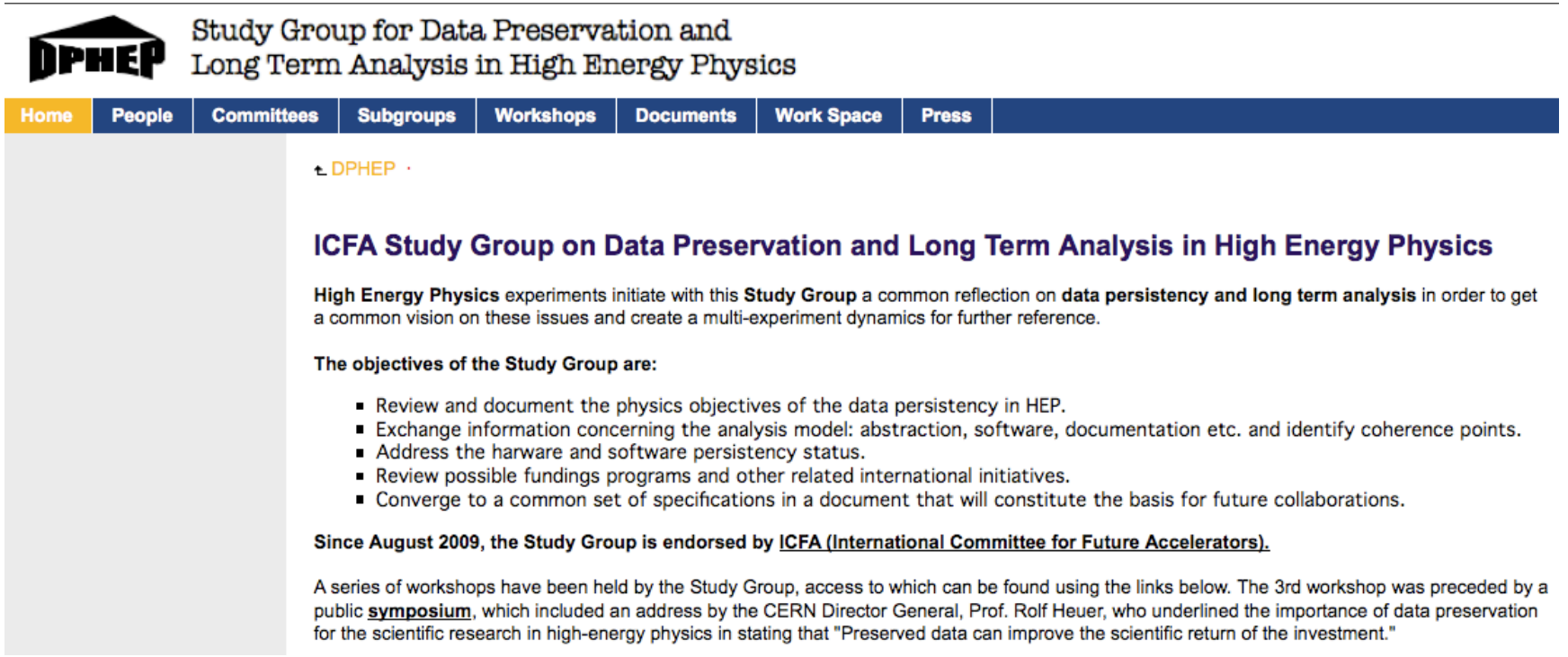
Open Access!

Scientific Information *is* e-Science

- Scientific information continuum: data -> articles
- GEANT, HPC and the Grid enable data -> articles
- e-Infrastructure opportunity for Open Access
- Enable more Science applying e-Science to articles!
- e-Librarianship intelligence in the e-Infrastructure

Next generation of CERN scientists: our Summer Students

Data : access and preservation



Study Group for Data Preservation and
Long Term Analysis in High Energy Physics

Home | People | Committees | Subgroups | Workshops | Documents | Work Space | Press

DPHEP

ICFA Study Group on Data Preservation and Long Term Analysis in High Energy Physics

High Energy Physics experiments initiate with this **Study Group** a common reflection on **data persistency and long term analysis** in order to get a common vision on these issues and create a multi-experiment dynamics for further reference.

The objectives of the Study Group are:

- Review and document the physics objectives of the data persistency in HEP.
- Exchange information concerning the analysis model: abstraction, software, documentation etc. and identify coherence points.
- Address the harware and software persistency status.
- Review possible fundings programs and other related international initiatives.
- Converge to a common set of specifications in a document that will constitute the basis for future collaborations.

Since August 2009, the Study Group is endorsed by ICFA (International Committee for Future Accelerators).

A series of workshops have been held by the Study Group, access to which can be found using the links below. The 3rd workshop was preceded by a public **symposium**, which included an address by the CERN Director General, Prof. Rolf Heuer, who underlined the importance of data preservation for the scientific research in high-energy physics in stating that "Preserved data can improve the scientific return of the investment."

http://www.dphep.org/

Libraries and open access are the keys to knowledge

In a scenario with no barriers, to access and disseminate peer-reviewed scientific results; only then, we could take the full advantage of the scientific talents across the world.

The hinders are to be overcome!