The SCOAP³ project & its benefits for the Scientific Communication

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Open Access Infrastructures: The Future of Scientific Communication
Athens, 16 December 2008

scoap3.org
High-Energy Physics (or Particle Physics)

Job description for 20’000-30’000 scientists:
"What is the world made of?” & "What holds it together?”

HEP aims to understand how our Universe works:
– discover the constituents of matter and energy
– understand their interactions
– unveil the ultimate texture of space and time

Experimental HEP builds the largest scientific instruments ever to reach energy densities close to the Big Bang (Half of the community, 20% of literature)

Theoretical HEP predicts and interprets the observed phenomena (Half of the community, 80% of literature)
\( \hat{c} = 1 \) Superconformal Field Theory

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We consider superconformal field theories with central charge \( \hat{c} = \frac{1}{2}c = 1 \). We find five continuous one-parameter families of theories all interconnected via a set of multicritical points that are reached by modding out theories with enlarged symmetries. We find as well 6 theories that have no integrable marginal operators and thus constitute isolated points of superconformal invariance in the \( \hat{c} = 1 \) moduli space. We briefly discuss \( c = 3/2 \) conformal theories that contain a twisted superconformal algebra, including 3 isolated theories with a twisted \( N=3 \) superconformal algebra, and theories constructed as the tensor product of the \( c = 4/5 \) and \( c = 7/10 \) minimal theories.

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(\( \text{submitted to Nucl. Phys. B} \))

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Everything is Open Access, but it is not enough... We need peer review!
Axion community support open access

Publications are the major output of scientific research and should be made available in their final form to the widest possible audience. In his talk Jens Vigen, CERN’s head librarian, underlined the importance of the axion community’s decision to challenge the current publishing paradigm that is based on publication behind toll barriers, and supported unanimously the open-access initiative advocated by CERN.
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

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

7000 scientists from 54 countries

105 scientists from 12 Indian institutes
Viewpoint: Let the data free!

Making astronomical data from the telescopes in space or on Earth freely available is common practice. A first step in this direction for particle physics data has been undertaken recently with QUARCO, a scheme developed at Fermilab to make high-energy data from the D0 experiment generally available (CERN Courier November 2001 p8. Abazov et al 2001). This kind of "experimental transparency" allows any physicist in the world to test a new theoretical idea or evaluation algorithm. However, the practice does not exist for data taken from dark-matter experiments, although the most natural approach for this relatively new cross-disciplinary field of astroparticle physics should be that the data do not remain the private property of each experimental collaboration, but become public, as in the case of astronomical data.

We do not believe that the continuing secrecy in experimental astroparticle physics has been introduced intentionally. On the contrary the reason most probably lies in the lack, as yet of any direct signature for dark-matter particles, which are believed to dominate the gravitational mass of the universe strongly. This situation has existed for decades.

Authors: Zioutas, K, Hoffman, D, Jacoby, J
Towards Open Access Publishing in High Energy Physics

Report of the SCOAP$^3$ Working Party

The SCOAP$^3$ Working Party


CERN
Geneva
19 April 2007
The vice-rector of the University of Patras, Professor Vassilis Anastassopoulos hands over to CERN DG Dr. Robert Aymar, the very first financial contribution to the emerging consortium SCOAP³ during the OAI Workshop (CERN in April 2007).

Expression of Interest to SCOAP³ initiated by Patras University in September 2007, confirmed by all greek rector in November 2007.
HEP and Open Access

After preprints, arXiv and the web, high-quality Open Access journals are the natural evolution of HEP scholarly communication.
Going beyond current experiments

The SCOAP³ model

Sponsoring Consortium for Open Access Publishing in Particle Physics

scoap3.org

http://scoap3.org/files/Scoap3ExecutiveSummary.pdf
The SCOAP\(^3\) Model

A consortium sponsors HEP publications and makes them Open Access by re-directing subscription money.

Today: (funding bodies through) libraries purchase journal subscriptions to (indirectly) support the peer-review service and to allow their users to read articles.

Tomorrow: funding bodies and libraries contribute to the SCOAP\(^3\) consortium, which pays centrally for the organization of the peer-review service, through a call for tender. Articles are free to read for everyone.

5000-7000 HEP articles/year
80% of articles published in 6 leading journals by 4 publishers

SCOAP\(^3\) is not limited to any set of journals but open to all high-quality HEP journals!
Guesstimating the budget envelope
(data and exchange rate of April ‘07)

- **Physical Review D** (APS) income of 
  2.7M€/year (31% of arXiv:hep)
- **Journal of High Energy Physics** (SISSA/IOP) needs 
  ~1M€/year (19% of arXiv:hep)

**HEP Open Access price tag: 10M€/year**

Other ways to estimate the budget envelope
- A published PRD article costs APS ~1500€
- Volume of “HEP” articles: 5000-7000/year

The final price-tag for SCOAP³ will be known after a call for tender for the peer-review and other editorial services will be placed with publishers
Novelties of the SCOAP$^3$ model

- A sustainable alternative to the subscription model meeting the expectations of researchers, funding agencies, libraries and publishers.
- Link, through its call for tender, price and quality. Correlate through its contracts volume and price. This is not the case in the subscription model.
- Eliminate author-pays fees, in competition with research funds which appear as a barrier for Open Access in HEP. There is no such competition in the SCOAP$^3$ model based on re-direction of subscriptions.
- Experiment for journal-administered peer-review services against a unique background of complete self-archiving of research articles.
SCOAP$^3$ financing

SCOAP$^3$ to be funded through a “fair-share” model based on the fraction of HEP articles per country: the more a country uses the system the larger its share. Figures are very stable over time.

The model is viable only if every country is on board! Success through consensus and unanimity, not majority. Not a weakness: a strength!

Make a 10% allowance for countries without a scientific or library infrastructure who at the beginning might not contribute to the scheme.

Allowing only SCOAP$^3$ partners to publish Open Access would replicate the subscription scheme and not solve the problems.
SCOAP³ funding mechanisms

- Funding partners identify country-by-country schemes to re-direct journal subscriptions to SCOAP³
- Countries **pledge** their contribution to SCOAP³
  - Countries with **centralised** structures for licensing join through their national consortium
  - Countries where subscriptions are paid by HEP **funding agencies** join through these agencies
  - In the decentralised U.S. scenario **single** institutional and **consortial** partners join SCOAP³ **directly**
- Pledges **conditional** to contractual conditions with publishers in line with the SCOAP³ objectives (unbundling, Open Access, author rights...)
- Broad **worldwide consensus**, signified by the pledges, indispensable before the next phase can commence
Status of the SCOAP³ fund-raising
56% of funds have been or are about to be pledged, commitment to re-direct subscriptions to HEP journals mostly by library consortia acting on behalf of whole countries

Austria  Italy
Belgium  Netherlands
CERN  Norway
Denmark  Romania
France  Slovakia
Germany  Sweden
Greece  Switzerland
Hungary  JISC (UK)

Australia  Israel, Turkey

47 US partners (>50%)
-consortia(NERL, CDL, GWLA, OhioLink...)
laboratories
individual libraries

Discussions and negotiations in progress with all countries not yet in the list, in Europe, Asia and the Americas.
SCOAP$^3$ timeline

- Funding partners identify country-by-country schemes to re-direct journal subscriptions to SCOAP$^3$ and pledge their contribution to SCOAP$^3$
- Once a sizeable fraction of budget is pledged, reflecting the worldwide character of HEP and SCOAP$^3$:
  - SCOAP$^3$ will be formally established, with international governance
  - SCOAP$^3$ can issue a tender to publishers
- Publishers answer the tender
- SCOAP$^3$ international governing board adjudicates contracts, taking into account journal quality and prices
- Contracts with publisher are signed and funds are transferred to SCOAP$^3$ which then pays publishers.
- Aim to 3-year tendering cycle, with funding commitments in sliding windows
Publishers are ramping up for SCOAP3

**Europhysics Letters**: offers open access, free of charge, to all authors submitting experimental and theoretical HEP articles

**European Physical Journal C**: offers Open Access, free of charge, for all articles in experimental HEP

**Physics Letters B and Nuclear Physics B**: will publish Open Access, free of charge, the first articles describing the physics results of the LHC

**Physical Review D and Physical Review Letters**: offers “*Free to Read*”, a model where authors can pay fees to make their articles Open Access

**JHEP** and **JINST**: offers institutional membership which implies Open Access to all articles produced by the participating institutions
Thank you!

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scoap3.org

Additional resources:

Report of the SCOAP3 Working Party

http://arxiv.org/abs/0805.2739

R. Aymar, *Scholarly communication in High-Energy Physics*
http://cdsweb.cern.ch/record/1115073

A. Gentil-Beccot et al. *Information Resources in High-Energy Physics: Surveying the Present Landscape and Charting the Future Course*
http://arxiv.org/abs/0804.2701