

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)



PUPT-1084
SLAC-PUB-4515
HUTP-87/A085

$\hat{c} = 1$ Superconformal Field Theory

L. Dixon¹, P. Ginsparg², and J. Harvey³

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Princeton University
Princeton, N.J. 08544

²Stanford Linear Accelerator Center
Stanford, CA 94305

We consider superconformal field theories with central charge $\hat{c} = \frac{2}{3}c = 1$. 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.

~1/88

(submitted to *Nucl. Phys. B*)

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Axion community support open access

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.

CERN Courier
July/August 2006



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

105 scientists from

12 Indian institutes

ATLAS; approved on 23rd February 2007

CMS; approved on 2nd March 2007

ALICE; approved on 9th March 2007

LHCb; approved on 12th March 2007

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CERN COURIER

May 1, 2003

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 QUAERO, 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.



X-ray emitting gas

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.

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Authors: Zioutas, K, Hoffman, D, Jacoby, J

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Im Kampf mit der Datenflut

buchreport **Interaktiv** Prof. Rolf-Dieter Heuer hat die APE 2008 eröffnet. Im Interaktiv bricht er eine Lanze für die Open-Access-Bewegung.

Informationsflut.

Wir Physiker können von Informationsflut ein Lied singen... Es gibt heute 50-mal so viele Veröffentlichungen wie noch vor 100 Jahren. Bevor wir jedoch unsere Artikel schreiben können, müssen wir mit der Datenflut kämpfen. Unser neues Flaggschiff, der Large Hadron Collider am CERN, wird pro Jahr Daten produzieren, die einem CD-Stapel von 20 km Höhe entsprechen. Die Teilchenphysik steht damit, wie auch jeder Internetnutzer, vor dem Problem: Wie filtere ich die für mich relevante Information heraus?

Qualitätskontrolle. Wissenschaftler und ihre Forschungsergebnisse sind nur dann glaubwürdig, wenn sie verlässlich bewertet werden. Bevor wir Ergebnisse veröffentlichen, durchlaufen sie mehrere Prüfungen, so etwa die interne Selbstkontrolle in Großexperimenten der Teilchenphysik. Unabhängige Kontrollen sind trotzdem unabdingbar. Wissenschaftsverlage spielen bei der Organisation des Peer Review, der Begutachtung durch unabhängige Experten des Fachgebietes, eine unverzichtbare Rolle.

Open Access. Ergebnisse öffentlich finanzierter Forschung müssen frei und öffentlich zugänglich sein, damit Forscher sie optimal nutzen können. Die Teilchenphysik hat hier stets eine Vorreiterrolle gespielt: Seit Jahrzehnten werden fast alle Artikel vor der endgültigen Publikation weltweit frei zugänglich gemacht – früher über Postmassenversand, heute über spezielle

**buchreport.steckbrief**

Der Physiker Rolf-Dieter Heuer, neu gewählter Generaldirektor des europäischen Kernforschungszentrums CERN, hat in der Akademie der Wissenschaften in seinem Festvortrag zur Konferenz APE 2008 dargelegt, wie der technologische Fortschritt die wissenschaftliche Kommunikation verändert.

Geboren: 1948

Lebt in Hamburg

Stationen: Studium der Physik in Stuttgart, 1977 Promotion in Heidelberg; seit 1988 Prof. der Physik an der Uni Hamburg

Forschungsgebiete: Untersuchung von Elementarteilchen und ihren Eigenschaften; Planung und Entwicklung von Nachweisgeräten; Forschung an Elektron-Positron-Linearcollidern

Publikationen: Mehr als 400

Sonstiges: Mitglied zahlreicher wissenschaftlicher Beratungsgruppen im In- und Ausland

Seiten im Internet. Der nächste logische Schritt für uns ist Open Access – freier Zugang für jedermann, jederzeit und überall –, auch zu den endgültigen, qualitativ kontrollierten Zeitschriftenartikeln. Die Open-Access-Diskussion ist noch neu, deshalb sind hier neue Geschäftsmodelle und innovatives Denken gefragt.

Netzwerke. Großexperimente der Teilchenphysik sind internationale Netzwerke, von der Planung bis zur Publikation. Wir können nur durch globale Vernetzung die riesigen Datenmengen speichern und auf sie zugreifen. So entstand z.B. das World Wide Web am CERN, weil Wissenschaftler rund um die Welt einen einfachen und effizienten Weg brauchten, um Informationen auszutauschen. SCOAP³ (Sponsoring Consortium for Open Access in Particle Physics) ist ein Beispiel für ein weltweites Netzwerk von Forschungsorganisationen und Bibliotheken mit dem Ziel, die gesamte Forschungsliteratur der Teilchenphysik frei zugänglich zu machen.

Towards Open Access Publishing in High Energy Physics

Report of the SCOAP³ Working Party

The SCOAP³ Working Party*

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B.-C. Kämper^f, J. Krause^f, T. Lagrange^f, F. Le Diberder^g, A. le Masurier^h,
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CERN
Geneva
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Publication details:

scoap3.org/files/Scoap3WPRReport.pdf

scoap3.org/files/Scoap3ExecutiveSummary.pdf

Scoap3.org

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 rectors 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>

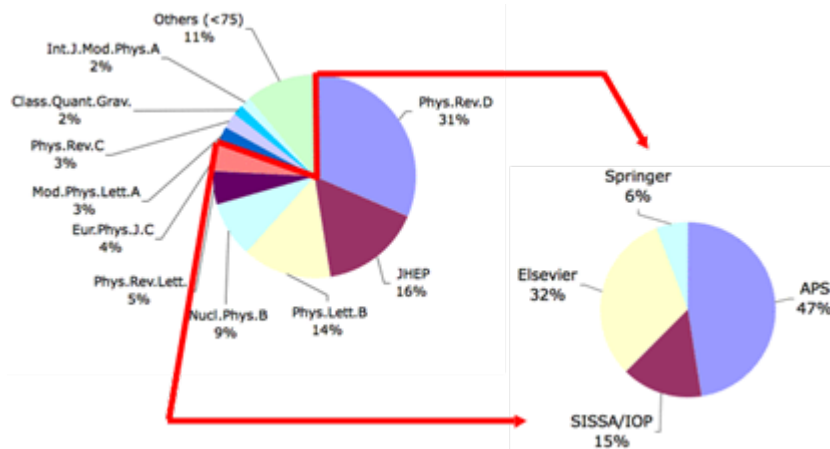
<http://scoap3.org/files/Scoap3WPReport.pdf>

The SCOAP³ 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 SCOAP³ 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

SCOAP³ 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 SCOAP³ 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 SCOAP³ 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.

SCOAP³ financing

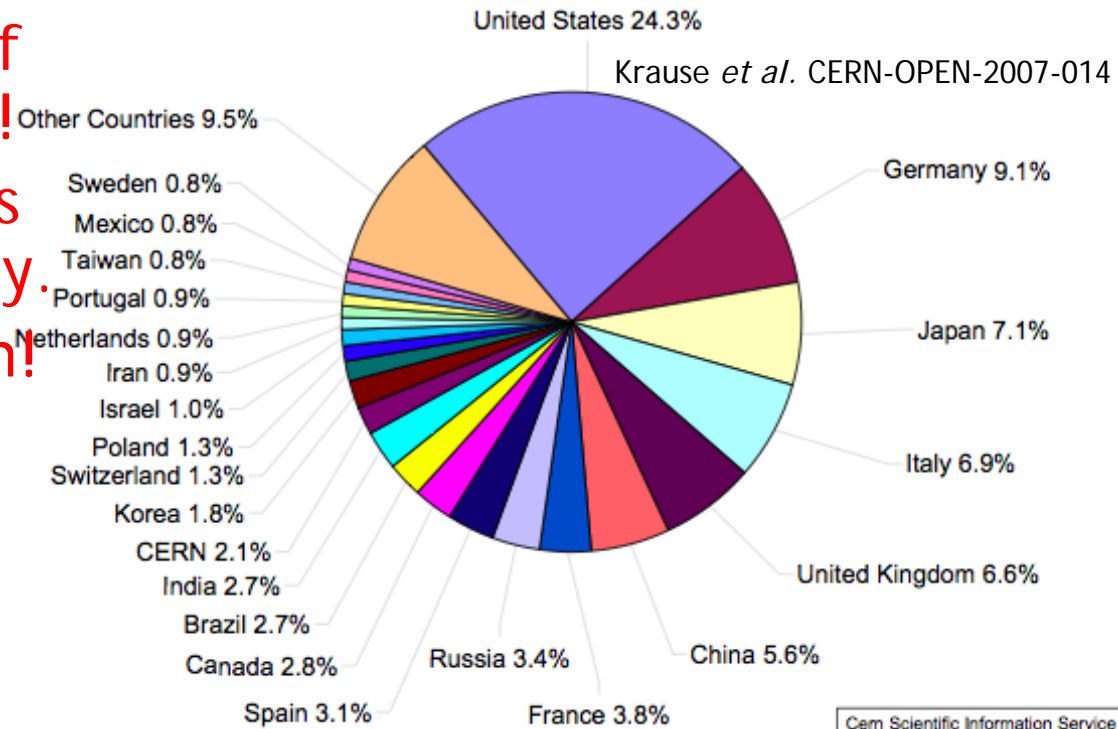
SCOAP³ to be funded through a “fair-share” model based on the fraction of HEP articles per country: the more a country uses the system the larger its share. Figures are very stable over time.

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.



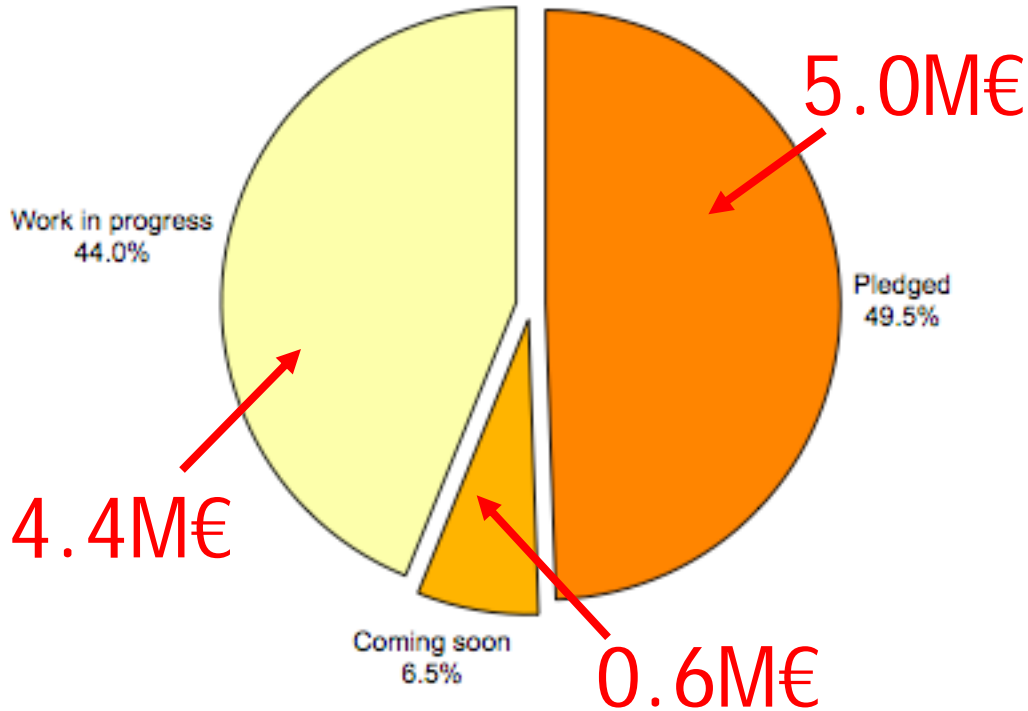
Allowing only SCOAP³ partners to publish Open Access would replicate the subscription scheme and not solve the problems.

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
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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.

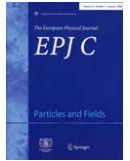
SCOAP³ timeline

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

Publishers are ramping up for SCOAP³



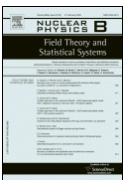
Europhysics Letters: offers open access, free of charge, to all authors submitting experimental and theoretical HEP articles



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!

Konstatin Zioutas
Anne Gentil-Beccot

scoap3.org

Additional resources:

Report of the SCOAP3 Working Party
<http://scoap3.org/files/Scoap3WPReport.pdf>

R. Heuer *et al.* *Innovation in Scholarly Communication: Vision and Projects from High-Energy Physics*
<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>