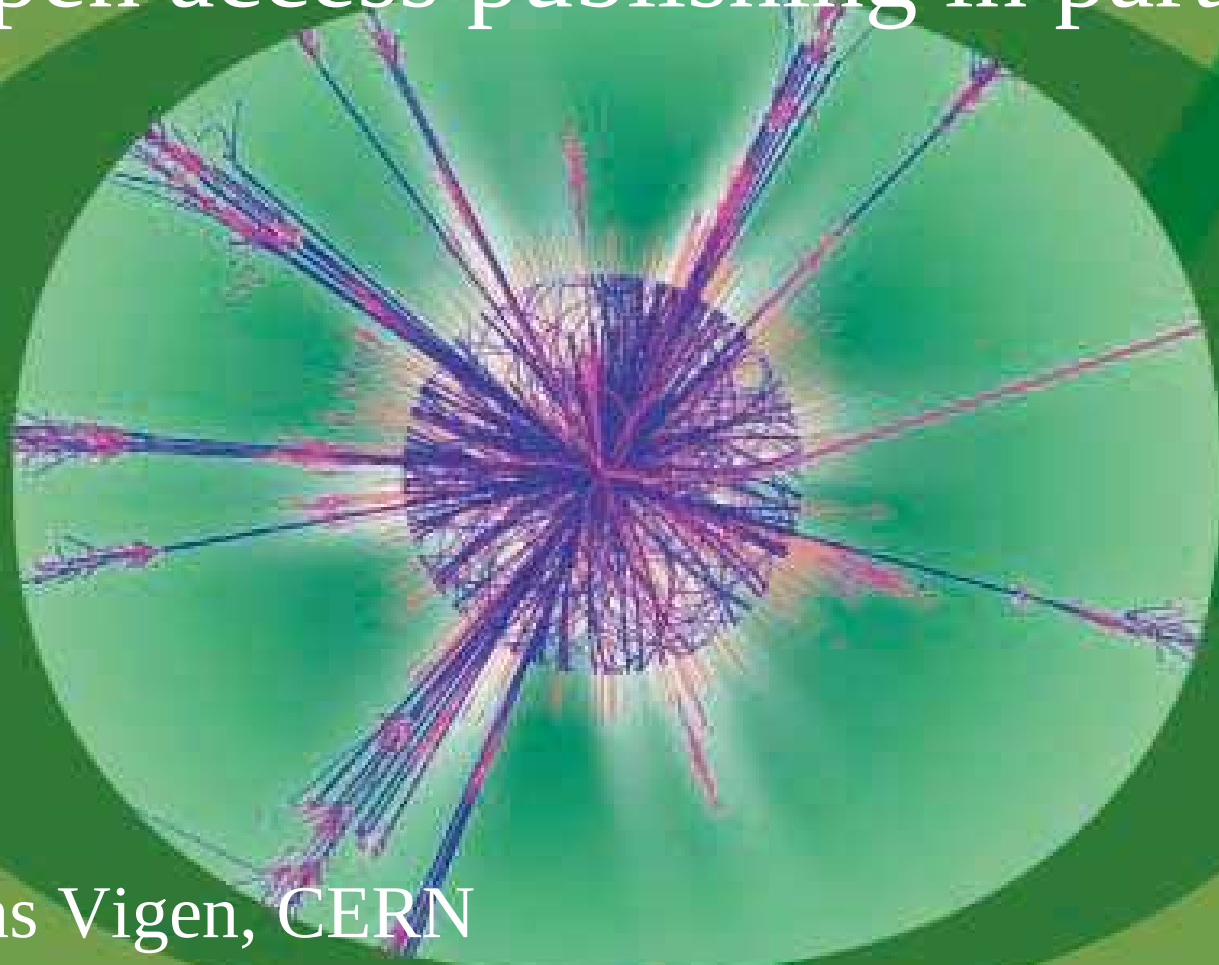
On the golden road -
Open access publishing in particle physics



Jens Vigen, CERN

May 17-20, 2007

FEST, the first International Science Media Fair
Trieste, Italy

Scholarly communication
High-Energy Physics - a quick overview

- Communication patterns in HEP
  - Striking article by Luisella Goldschmidt-Clermont, preprinted 1965 (only published in 2002)

- The publishing landscape of HEP
  - A quantitative analysis (S. Mele et al. 2006)

- A model for OA publishing in HEP
  - SCOAP^3, as proposed by the Working Party

Communication patterns in HEP (I)

Green Open Access, based on a long tradition

- Preprints are the main vehicle of information exchange
- The CERN Convention (1953) contains what is effectively an early Open Access manifesto:
  - *"… the results of its experimental and theoretical work shall be published or otherwise made generally available."*

Moving towards gold Open Access is now a priority

- Preserve the existence of the peer-review process
- Populating the repositories with final versions of peer-reviewed articles in addition to preprints will soon become the norm

Sometimes funny reactions…

- "*Most of us, admittedly, will not have much use for free access to new discoveries in, say, particle physics.*", New York Times, August 7, 2003

Communication patterns in HEP (II)

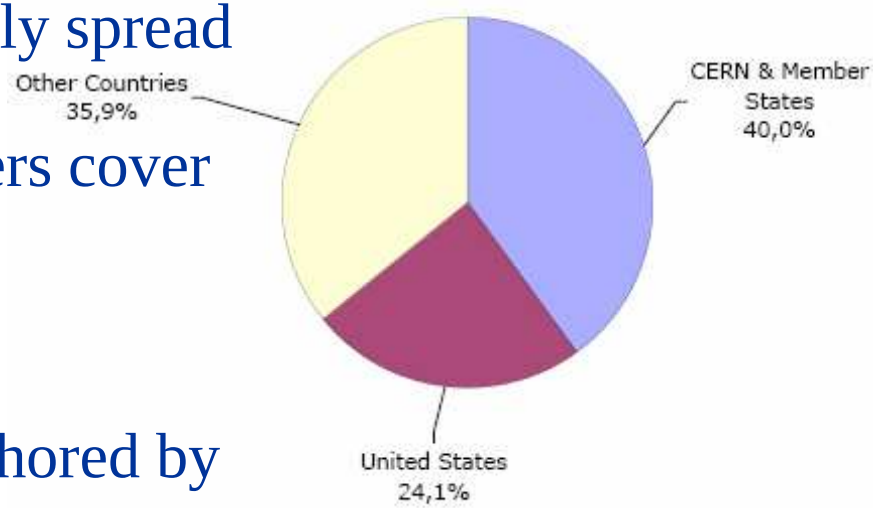
Very close to full E-print Coverage

- Some culture variations within the field
  - 90% of the total of HEP articles represent theoretical physics, the rest is distributed over experimental results and descriptions of instrumentation, at CERN we observe:
    - Theory: close to 100%
    - Experimental results: about 70%
    - Instrumentation papers: only 30%
- Subject repositories vs. regional and institutional
- The community is ready for OA gold

The HEP publishing landscape (I)

Small enough to be manageable

- Less than 10.000 articles/year evenly spread across the world
- Less than 10 journals by 5 publishers cover 95% of this corpus



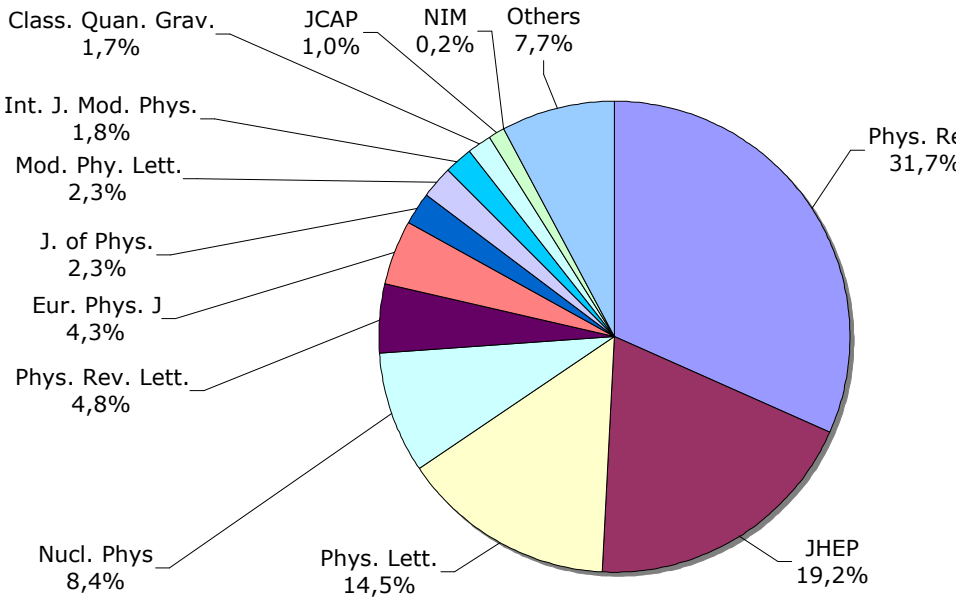
A strong collaboration culture

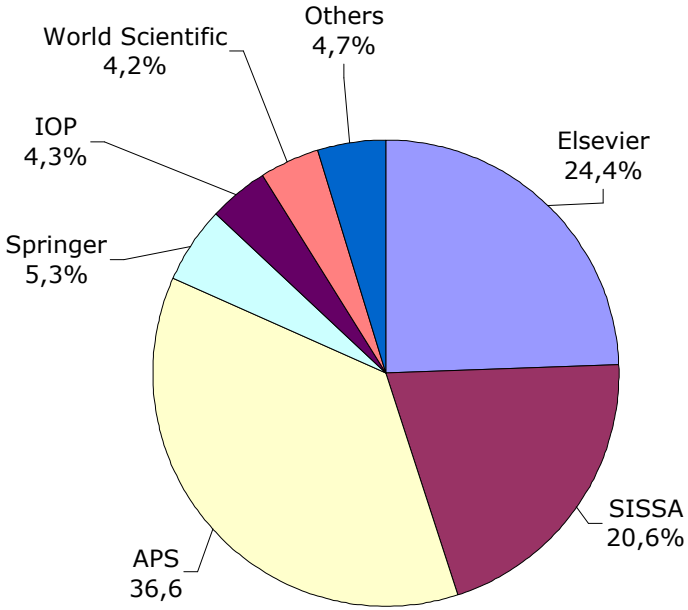
- Experimental papers (10%) co-authored by several 100s-1000s physicists
- Theoretical papers (90%) by small groups, but often across countries

The HEP publishing landscape (II)

S. Mele et al. JHEP 12(2006)S01
arXiv:cs.DL/0611130

5051 articles submitted to arXiv:hep in 2005 and published in peer-reviewed journals





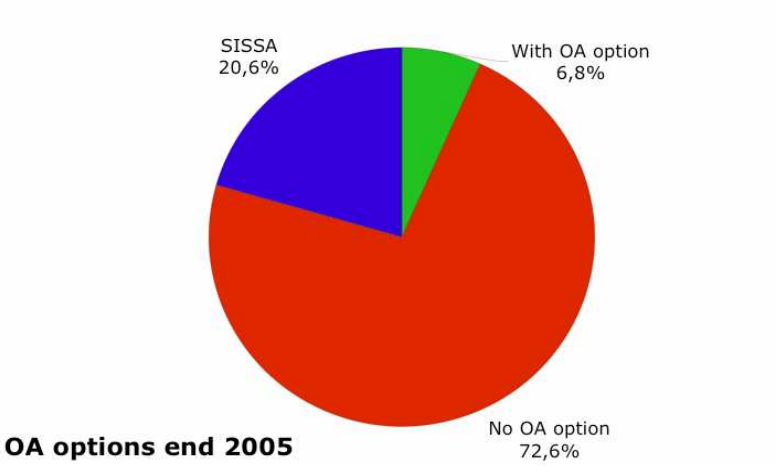
90% of articles in theoretical physics
83% of articles published in 6 leading journals
87% of articles published by four publishers

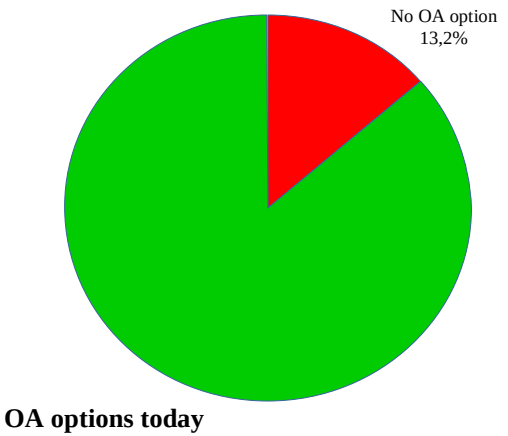
The HEP publishing landscape (III)

Expansion of OA offers over the last 18 months

Published articles by journal OA policy:

had authors wanted, could their articles be published OA?

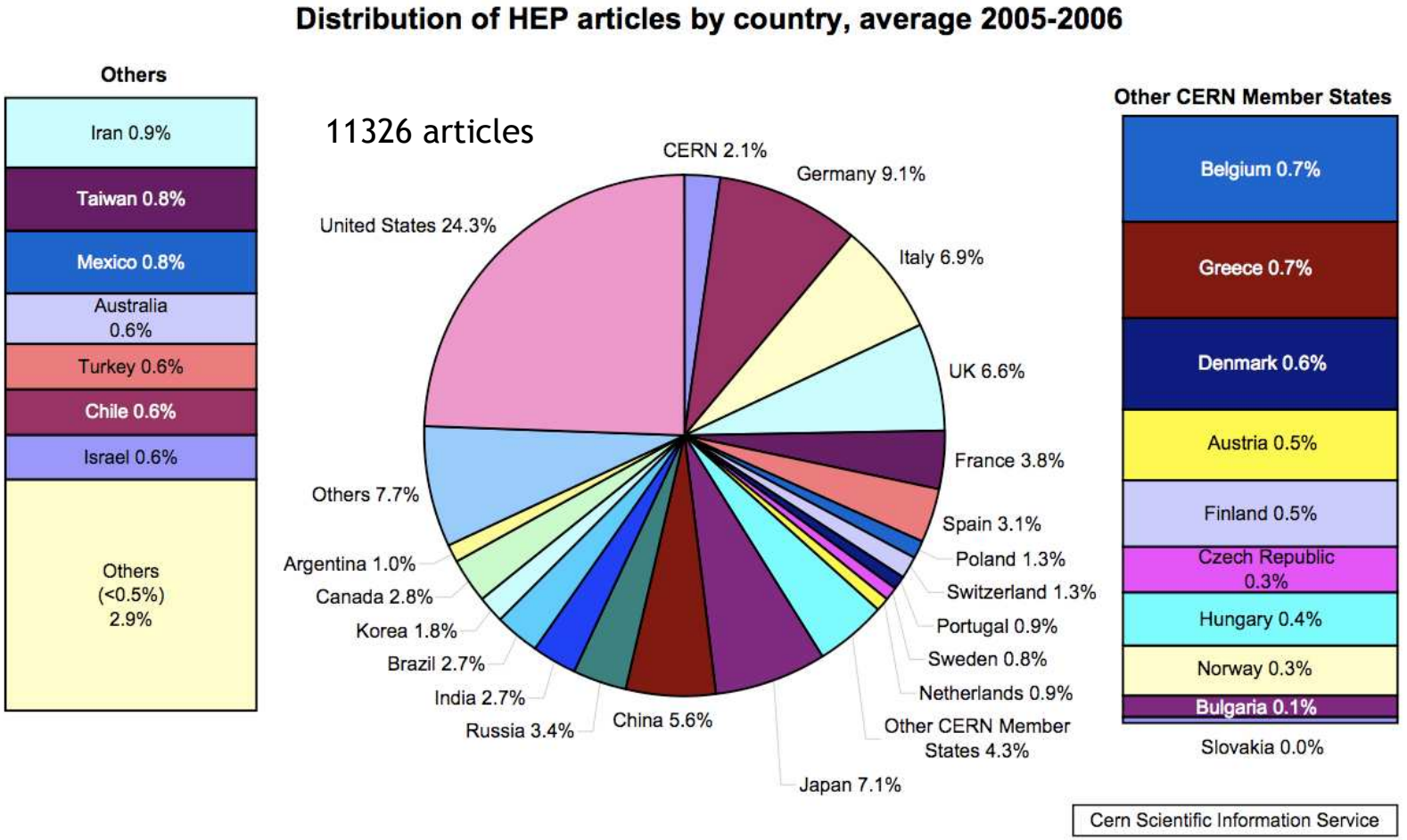




Unfortunately only a very little fraction of these articles were effectively published Open Access as the pay-per-article models are not popular in high-energy physics, neither among authors, neither among funding agencies

The HEP publishing landscape (IV)

A detailed study of the7 core journals



All of PRD,JHEP,PLB,NPB,EPJC. Only HEP fraction of PRL(11%) and NIMA(23%)
Co-authorship is taken into account on a *pro-rata* basis
by assigning articles to countries according to their number of authors.

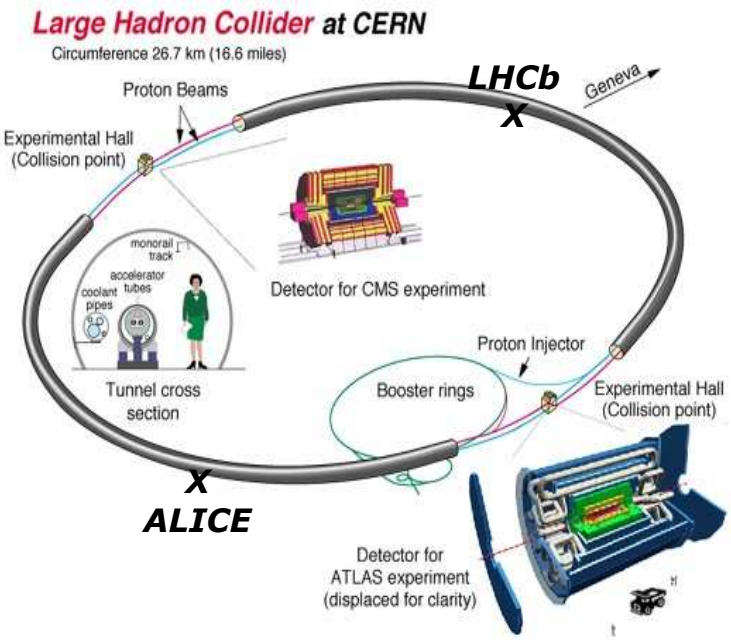
A model for OA publishing in HEP

Sponsoring Consortium for
Open Access Publishing
in Particle Physics
SCOAP^3

The startup of the LHC machine

A watershed for particle physics

- Long-awaited new results will soon be published
- A unique opportunity to publish under a new model: the subscription model is not any longer sustainable for the scientific community
- Based on solid pillars
  - Sound competition among publishers
  - Academic freedom
  - Publishing costs should be considered as part of research costs
  - Top quality (based on peer-review) and Open Access publishing
  - Libraries should ensure long-term access



Our goals

- Access to the literature with no restriction for any reader
- OA Publishing without financial barriers for any author
- Maintain and stimulate a wide choice of high-quality journals
- An “author-friendly” copyright agreement
- High peer-review and editorial standards
- Competition among journals
- Get spiraling subscription costs under control

SCOAP^3

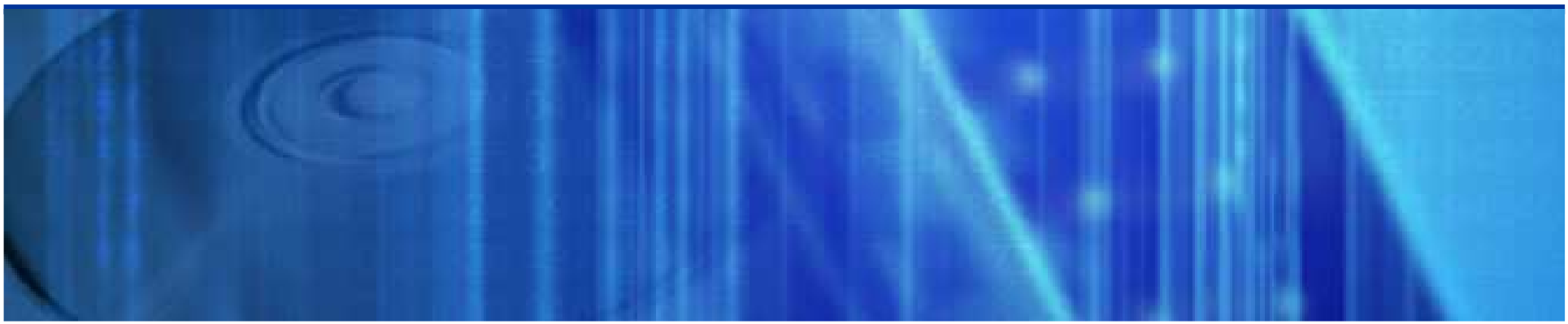
Sponsoring Consortium for Open Access Publishing in Particle Physics

- Sponsor publications in OA journals through a consortium is the most promising and feasible business model for particle physics
- Potential partners:
  - Funding agencies
  - Major particle physics laboratories
  - Major author communities
  - Libraries in and outside particle physics

The approach of SCOAP^3

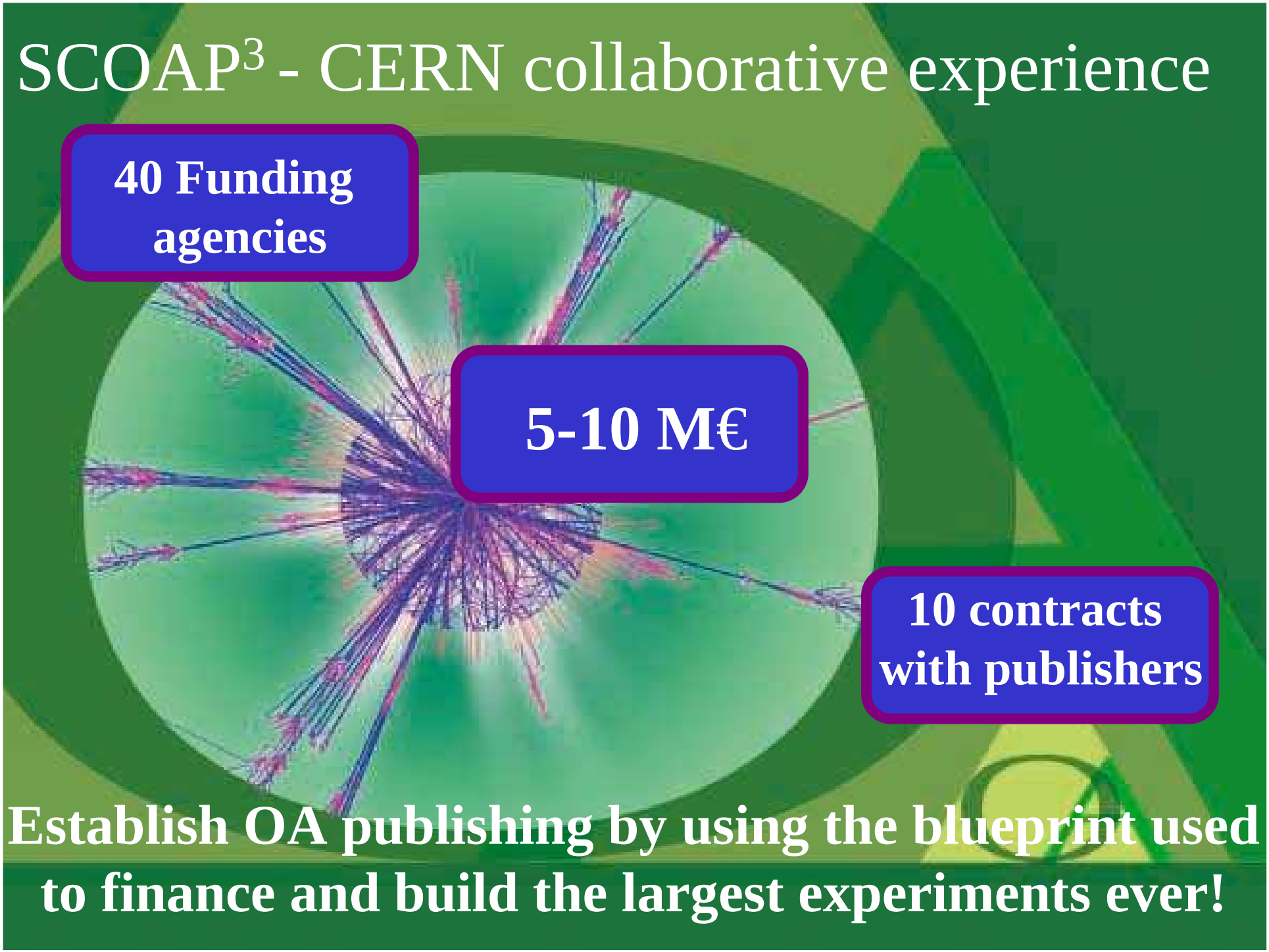
- Sponsor all publications in HEP high-quality journals; sponsor HEP articles in broad-band journals
- Fundraising by redirecting subscription budgets to SCOAP^3
- Open tendering process and sign contracts with qualified publishers
- Make all sponsored articles available through a single repository. Offer additional services to the community, i.e. citation analysis, text mining.
- Sponsor all articles relevant for the field; estimated cost 5-10 M€/year
- May seem a lot, but compare it to traditional journal subscriptions integrated over all particle physics institutes:

One title only: *Nuclear instruments and methods in physics research*
16,000€/year × 300 LHC institutes = 4.8M €/year!



A highly complex move with many parties involved, but …

SCOAP^3 - CERN collaborative experience



40 Funding agencies

5-10 M€

10 contracts with publishers

Establish OA publishing by using the blueprint used to finance and build the largest experiments ever!

Conclusions: SCOAP^3 in a nutshell

- Establish Open Access in HEP publishing in a transparent way for authors.
- Convert existing high-quality peer-reviewed journals to Open Access, in a sustainable way.
- Generate savings through negotiating power, author awareness and competition among journals.
- Price tag of 10M€/year to be shared according to the distribution of HEP articles per country.
- The model has high potential but is only viable if every country contributing to HEP is on board!
- Self archiving and open access publishing : a synergy