

Kimberly Douglas

Exploring the SCOAP3 model for high energy physics

A new innovation in open access

A new model for funding high energy physics (HEP) journals has emerged and is drawing concerted interest and questions from the library community. SCOAP3, the Sponsoring Consortium for Open Access in Particle Physics Publishing.

A crowd of about 80 turned out for presentations by Salvatore Mele of CERN at the 2009 ALA Midwinter Meeting in Denver and another 22 came to an information session during the 2009 ACRL National Conference in Seattle.

The audiences were well apprised of the goals and desires for open access in HEP journals. In addition, there was acknowledgment that the current subscription model in libraries is unsustainable, and constructive change must be found. The audiences on both occasions were positive and hopeful, and posed good questions; however, it continues to be worth demonstrating how the SCOAP3 proposal offers libraries an opportunity to contribute toward open access in an innovative manner that fosters exploration of new possibilities.

Despite the growing number of open access journals and the studies undertaken to better understand the costs of peer-review management and publishing, the library journal subscription model continues with little price weakening, even in these difficult times.¹

Enter the SCOAP3 proposal from HEP scientists to achieve open access. This initiative redirects institutional journal subscription dollars through an international consortium to pay for peer-review management, editing and formatting services, and ensures author

rights for open reuse and sharing of published papers, as well as instituting a bidding process to establish the price of these services.²

This innovative model originates with the stakeholders for an entire discipline, comprising the scientists, publishers, agencies, and libraries. There is no other proposal or potential model that has used problem definition, process of investigation, data gathering, and analysis to engage the entire community to work toward a solution. Every stakeholder group has a role in the change:

1. the authors commit to publishing in SCOAP3 journals;
2. the publishers participate in a transparent bidding process; and
3. the subscribing institutions around the world (libraries, agencies, and so forth) redirect subscription dollars to the consortium that will oversee the bidding process and payments to publishers.

This basic framework was laid out for the audiences in Denver and Seattle and prompted questions pertaining primarily to the governance of the SCOAP3 consortium and the bidding, or tendering, process. For the United States, the model for an international consortium and bidding process introduces new concepts, as well as an unprecedented level of independent collaboration and coor-

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dination for use of academic library financial resources. It requires a broad perspective of the needs of the scholarly community across the entire country, and synced with an even wider worldwide effort.

These following three conditions create a new formal scholarly communication model that changes behaviors, concurrently addresses the market inefficiency of institutional journal subscriptions, and captures a critical mass of papers in a field:

1. open access for the final peer-reviewed, publisher formatted version;
2. engagement and commitment of a research community, a defined discipline; and
3. an elastic pricing environment for peer-review management and publishing services.

The success and benefits of publicly funded research depend on the widest distribution of results. In the print model, the transfer of exclusive copyright to publishers provided them with the business incentive to publish research papers. While broad distribution remains a primary research and social objective, the means have changed dramatically since the advent of the global network in the mid 1990s, opening the door for research output to become open access.

SCOAP3 describes this explicit goal as articles shall be made available on an irreversible OA [open access] basis.³ The requirements go on to stipulate capture and reuse of the articles and associated metadata in subject and institutional repositories that can support text and data-mining applications.

No new model can succeed without the participation of the researchers. They are the source of the new capital—the manuscripts that drives the entire enterprise. Since 2000, a number of alternative models have emerged that range from author payments after the publishing initiative is capitalized by a grant (e.g., PLoS) to author payments in addition to a hosting institution subsidy (*New Journal of Physics*) to institutional payments coupled with author fees (e.g., Biomed Central).

These models all have the objective of achieving open access for the final published versions of the peer-reviewed papers. In addi-

tion, with pressure from authors and funding agencies, some publishers release a journal's content after a six-to-twelve-month embargo (e.g., PNAS) or some publishers release the article immediately for a fee (e.g., Springer, Elsevier, and PNAS). These examples are based on a single new journal or publisher with the hope that they would attract sufficient individual researchers and their papers to succeed as a model. While these new ventures enjoy a range of success, they have not captured sufficient critical mass to leverage an entire discipline into a new model.

The SCOAP3 proposal is a response to the clear call from the HEP scientific community to reposition the final formal version of papers for maximum availability; specifically those working at the CERN LHC accelerator, including more than a thousand U.S. physicists committed to only publish their articles under open access conditions to the point of voting to privilege SCOAP3-friendly journals.⁴ To that end, all the papers describing the construction of the Large Hadron Collider (LHC) apparatus are openly available in the *Journal of Instrumentation*.⁵ HEP scientists have thus shown a willingness to conform their behavior discipline-wide in the interest of gaining open access across all peer-review publishing venues.

Prior to the development and adoption of arXiv, paper preprints were usually discarded from the library when the print journal arrived, while a community-operated database, SPIRES, maintained the bibliographic information.⁶ Given the barriers to easy article use and reuse driven by financial issues and publisher silos, arXiv has achieved enduring utility that is operating parallel to the peer-reviewed publications. Currently in HEP, the informal preprint version is better integrated into scholarly communication activities than the final formal published version. Yet it is not desirable for HEP authors at this time to orchestrate a peer-review management model around arXiv that eliminates the role of publishers.

Career requirements for publication in high quality journals are consistent across

disciplines, and, notwithstanding the scholarly communication practice in HEP, HEP scientists are dependent on publication in peer-reviewed journals, as are the vast majority of researchers worldwide. It should be noted that the conditions that work for HEP, reliance on preprints in particular, do not *currently* transfer to many other disciplines. It is not practical to envision a model for change without accommodating the evaluation aspects of the present day academic system. Without the journals, the scientists will not and, indeed, cannot reasonably be expected to fully participate as a group.

As is the usual practice in HEP, when a major multinational project is undertaken, the basis for consensus and the potential budget are first thoroughly discussed via the Expression of Interest mechanism, followed by the creation of an international governing board with representatives from all countries involved. The case of SCOAP3 would be no different.

As Salvatore Mele noted in his Seattle presentation,⁷ SCOAP3 moves forward as the governing board fleshes out the tender requirements document to be sent to the publishers, whose bids will be evaluated for compliance. All bids or responses that meet the conditions would be accepted. If the bidding process is deemed successful, meaning that the publishers will, among other actions, unbundle the SCOAP3 titles from the packages and reduce the price for the remaining portion, the governing board will issue Memoranda of Understanding (MoU), a financial contract, to the Expression of Interest signers. At this point the full details of the SCOAP3 model will be known and can be evaluated prior to committing to the MoU. It is important to note that at this stage the Expression of Interest does not bind a signing U.S. library to a financial commitment.

Throughout this process the work of the board will have the legal and financial infrastructure support of the CERN laboratory in Geneva, an organization that has supported a \$9 billion procurement process for the construction of the LHC. The details, however, of

the governing board constitution, as well as the completion of the international fundraising effort, cannot be worked out until more U.S. libraries sign the Expression of Interest.⁸

To move forward in achieving open access, U.S. libraries that subscribe to any of the top journals that are considered 100 percent convertible to SCOAP3 (*European Physical Journal C*, *Journal of High Energy Physics*, *Nuclear Physics B*, *Physical Review D*, and *Physics Letters B*) need to participate. There are also three more titles with different HEP participation rates: *Journal of Instrumentation* at 50 percent, *Nuclear Instruments and Methods* at 25 percent, and *Physical Review Letters* at 10 percent. Titles in package or consortium deals would be prorated.⁹

It is no small undertaking to envision and implement a different model for the flow of funds to pay for peer-review management and editing services and to assure the rights sufficient for appropriate access and archiving over the long haul. HEP physicists brought the world the Web, perhaps they have supplied a key to stimulating transformation of the scholarly communication enterprise.

The SCOAP3 2007 report is remarkable in that it gives serious attention to the challenging issues integral to a successful transition from the library subscription and licensing model to one allowing unfettered use of research papers for present needs and those unforeseen for the future.

The SCOAP3 model should not be allowed to fail due to the lack of engagement solely on the part of the U.S. library community. In other countries, both research and universities are under public control, with governments underwriting the grants and libraries. In the United States, the organization of research, universities, and libraries is fractured and balkanized by the mix of public and private funding along with differing practices among states. The lack of an overarching public authority in the United States leaves many different entities to grapple on their own with both practical issues and strategic

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Jay Trask has joined the Archival Services Department as head of archival services at the University of Northern Colorado's James A. Michener Library in Greeley, Colorado.

Jeremy York is now special projects librarian in Library Information Technology at the University of Michigan.

Retirements

Kathy Arsenault has retired as dean of the Nelson Poynter Memorial Library at the University of South Florida-St. Petersburg.

Patricia Yocum has retired from the University of Michigan Library. Yocum began her career at the University of Michigan in September 1977 as head of the natural science at the Museums and Biological Station Libraries. During the 31 years that followed, she took on increasingly responsible positions, including coordinator of collections for the Basic Sci-

ence and Engineering Libraries, directing the efforts of Instructor College, and spearheading the creation of UC170. She served on numerous library committees and contributed service to the University of Michigan as secretary of the Senate Assembly and the Senate Advisory Committee on University Affairs, and as a member of the Board in Control of Intercollegiate Athletics. She is recognized as a leader on a national and international level in science librarianship and for her work in developing educational programs and services to academic library user.

Deaths

Beulah C. Howison, 99, former reference librarian at the University of Wisconsin-Stout, has died. Howison was an early leader in developing Simulated Literature Searching (multimedia) during the 1970s, and she published results in the *Drexel Library Bulletin*. ❧

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vision. This condition can be a strength if U.S. libraries will think global, really global, and act local. Otherwise, the United States will likely abdicate any international leadership role in new scholarly communication models. The challenge for U.S. libraries is to make the effort to see the bigger picture and find ways to align our disparate parts to create a better whole in the long run. SCOAP3 offers a promising new approach worthy of our support to pursue next steps.

Notes

1. Lee C. Van Orsdel and Kathleen Born, “Reality Bites: Periodicals Price Survey 2009,” *Library Journal*, April 15, 2009, www.libraryjournal.com/article/CA6651248.html.

2. See the FAQ at the SPARC Web site for answers to more specific information, www.arl.org/sparc/publications/papers/scoap3_09april.shtml.

3. *Towards Open Access Publishing in High Energy Physics*, SCOAP3 Working

Party, CERN, 2007. See “Tendering Requirements” on pp. 24–26, scoap3.org/files/Scoap3WPReport.pdf.

4. CMS (Compact Muon Solenoid) Collaboration Board Minutes from June 27, 2008.

5. See the *Journal of Instrumentation*, jinst.sissa.it/LHC.

6. Richard Poynder, “The Open Access Interviews: Annette Holtkamp,” 2008, www.richardpoynder.co.uk/Annette_Holtkamp_Interview.pdf.

7. Salvatore Mele, “SCOAP3, Sponsoring Consortium for Open Access Publishing,” Seattle, March 14, 2009, scoap3.org/files/Seattle-140309-Mele.pdf, 19.

8. More information on the Expression of Interest can be found at tinyurl.com/scoap3us.

9. Ivy Anderson, “Make SCOAP3 Happen,” presentation at ICOLC, San Francisco, California, 2008. See especially slides 8 and 10, www.scoap3.org/files/anderson_icolc.pdf. ❧