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### **EUROPEAN RESEARCH "OPENS UP" ITS RESULTS**

*Interview with Laura Patrizzii, INFN delegate in the Open Access working group of the association Science Europe, founded by European research or research funding bodies to develop and implement collective strategies.*

*Last September 4, 11 European institutions, including INFN, with the support of the European Commission and the European Research Council (ERC), launched cOAlition S, a project for the promotion of Open Access (OA), which envisages that, starting from 1 January 2020, scientific articles must be published on open access journals or platforms, when reporting results of research publicly funded by national and European research councils and agencies. We spoke about the initiative, which has had significant international exposure, with Laura Patrizi, INFN delegate in the OA working group of Science Europe, the association founded in 2011 by European research or research funding bodies to share experiences and practices, to develop and implement collective strategies, and which has been working since 2013 in promoting Open Access.*

#### **What does Open Access mean?**

Open Access is the unrestricted, digital, free, online access to research results and data, made possible by the advent of the Internet. OA stems from a basic principle: the results of publicly funded research are a common asset, so they must be publicly available. In particular, there are two different forms of Open Access. Gold OA, where the final version of an article is made accessible to everyone free of charge and permanently, immediately after publication. The copyright of the article is kept by the authors and most of the barriers to reproduction are removed. And Green OA: also known as self-archiving, this refers to filing the article in a repository, so as to make it accessible free of charge for everyone. In this case, unlike Gold OA, the copyright of Green OA articles remains with the publisher and there are restrictions on reproduction. There are different terms and conditions on self-archiving depending on the journal or publisher. They affect, for example, the article version

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that can be filed and the time it takes for an article to be available on the archive, after publication (embargo period). We can say right away that, even if the goal of cOAlition S is Gold OA, its members recognise open archives and the related infrastructures as strategic research elements.

### **The history of Open Access is now rather long...**

The origin of OA dates back to over 50 years ago with the development, in the community of high energy physicists, of the preprint culture, which responded to the need for a rapid communication of research progress. In 1991, Paul Ginsparg of Cornell University, while working at Los Alamos Laboratories, wrote a simple piece of software to automatically share drafts of works in preparation through a repository. Within a few years, with the World Wide Web, the website became xxx.lanl.gov, subsequently called arXiv.org in 1999. At the outset, ArXiv was exclusively dedicated to high-energy physics, but gradually expanded and is today multidisciplinary. There are now several other dedicated repositories, such as Citeseer for computer sciences, or RePec for economics.

The term Open Access was introduced for the first time in 2002 with [The Budapest Open Access Initiative \(BOAI\)](#), followed the year after by the [Berlin Declaration](#), which constitutes a sort of OA manifesto. OA means not only the use of scientific and academic works free of charge, but also the ability to "copy, use, distribute, transmit and publicly display the work, and to create and distribute derivative works, on any digital medium for any responsible purpose, subject to the correct attribution of the author".

In Italy, in 2004, the CRUI (Commission for University Libraries) promoted the adhesion of Italian universities to the Berlin Declaration "with the hope that this gesture constitutes a first and important contribution by Italian universities to a wider and more rapid dissemination of scientific knowledge" ([Messina Declaration](#)). In 2013, the Presidents of CRUI, CNR, ENEA, INFN, INGV and ISS signed the 'position statement' for the implementation of cooperative initiatives for OA and the development of a specific Italian law.

### **OA is a complex issue: it involves different players, there are many interests at stake...**

Yes, the issue is undoubtedly very complex because it involves diverse categories, with very different, even conflicting interests: universities, research bodies and agencies, publishers, scientific societies, university libraries, as well as, obviously, researchers. Advocates of the OA culture, including the European Commission, believe that the free and immediate dissemination of scientific results stimulates new research, reaching those who, for economic reasons, would not have access to it, and innovation in the public and private sector because companies enter more easily in the

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circuit of dissemination of results and the most advanced methods. Ultimately, its advocates believe that Open Access generates an economic boost as well as contributing to the dissemination of knowledge. And then there are also direct economic benefits: according to several studies, OA leads to savings in costs incurred by universities, research bodies, institutions, etc.

Widespread prejudices concern the poor quality of Open Access publications or the loss of copyright by the author or the lack of peer review of articles published in OA journals. An exemplary case of the opposite kind is the Journal of High Energy Physics (JHEP), owned by SISSA, OA published in Italy by Springer. The journal, founded in 1997, has implemented an online peer review procedure, for which SISSA is responsible.

### **What is the panorama today, worldwide and in Italy?**

The transition to OA is slow all over the world: 15 years after the Berlin Declaration, 85% of publications are still in traditional journals. There are many reasons for this lethargy. Certainly the main one is of economic nature: OA questions a well-established model of the publishing industry. The big publishing houses, which control the most prestigious journals, resist this change that involves a loss on the economic level and of supremacy on the publishing market. As in other economic sectors, the Internet has opened up new opportunities and great challenges.

Also in Italy there is an increasing interest, even if slow, towards OA, with an evident prevalence of the 'green way'. To date there are several dozen institutional or departmental repositories, a complete list can be consulted at [ROAR](#) (Registry of Open Access Repositories). According to a 2015 study on the status of Open Access journals in Italy (I. Fava AIB studies, volume 55 No. 3, September/December 2015, DOI 10.2426/aibstudi-11291), there were over 300 Italian journals present on [DOAJ](#) (Directory of Open Access Journals), with a slow but continuous growth trend.

INFN signed the Berlin Declaration in 2009 and the Messina Declaration 2.0 in 2014. In 2015, with CNR, INAF and INGV, it signed a MoU (Memorandum of Understanding) "for collaboration on the issues of open access and interoperability between R&D information systems".

INFN is partner and coordinator for Italy of the Sponsoring Consortium for Open Access Publishing in Particle Physics ([SCOAP3](#)) an initiative launched by CERN, and promoted in Italy by INFN, with the collaboration of CRUI, of research institutions and universities. The INFN-OA working group was spontaneously founded a few years ago by Roberto Barbera, Stefano Bianco, Marcello Maggi and Dario Menasce, with the aim of creating a centralised repository of open literature, both Gold and Green. A beta version of [Open Access Repository](#) has existed for a couple of years and has over 15,000 documents. INFN is among the most active research and funding institutions in OA.

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**This month, therefore, there has been a strong signal from 11 European institutions in favour of OA, with the support of the European Commission, the ERC and Science Europe.**

Plan S, jointly developed by Science Europe and Robert-Jan Smits, the OA representative of the European Commission, was created with the clear objective of accelerating the transition to OA: as from 1 January 2020, all scientific publications deriving from publicly funded research must be on OA journals or platforms. cOAlition-S, together with the European Commission and the ERC, is committed to a coordinated implementation of Plan S and its ten points which envisage, for example, that the authors keep the copyright of their publication without restrictions, that the costs of publication are incurred by the Institutions and not by individual researchers, and non-compliance of the "hybrid" publication model (hybrid open access) with the established principles. "Hybrid" journals are those that envisage the possibility of having an article published with free access against payment of the publication costs (Article Processing Charge, APC), while the rest of the journal remains accessible only by subscription. Plan S wants to dismantle this model that gives rise to the so-called 'double dipping' phenomenon: journals receive payment of an APC for an OA article and a second payment, for the same article, through the subscription to the entire journal by the libraries. Plan S envisages that a ceiling is established for APCs, that a list of accepted journals is drawn up and, if necessary, that new ones are financed. The objective is a general review of the publication model, in favour of an open and economically sustainable model. It should be noted that the transition will not be abrupt. In order to facilitate the transition from subscription access to open access, publication in "hybrid" journals is tolerated in the short term. It is worth mentioning initiatives such as OA2020, complementary to cOAlition S, which aim to increase the supply of quality OA journals by supporting the conversion of existing ones from the subscription model to the Open Access model. Plan S is certainly ambitious and its implementation will be difficult, because, as mentioned, it affects huge economic interests.

### **What reactions has cOAlition S received?**

The initiative has aroused and continues to arouse numerous reactions. In the first few weeks, more than 500 reactions have been counted in the press and on blogs. On Twitter, Plan S was a trending topic the morning it came out and today there are over 200,000 tweets on the initiative. There have been many positive reactions, most of them highlighting the need to take a bold step, stressing the importance of Open Access to science. Researchers have also raised some questions regarding the implementation of the plan. They certainly want to understand what will actually change for them,

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what will be financed and what not.

There have also been very negative reactions, and not surprisingly, from several traditional publishers who criticised the initiative and expressed concerns about the future of the publishing sectors. In relation to this, think of the economic damage that comes from banning hybrid journals: Springer Nature, for example, has over 1,700 hybrid journals and Elsevier controls over 1,850. It should be added that Plan S raises some concerns among OA supporters, due to the negative impact that, at present, it can have on research quality assurance (RQA), both of researchers and of research institutions alike. To date, RQA is based primarily on bibliometric indicators and we all want to publish in prestigious, high impact factor journals. For a new journal, it takes some time before it can assert itself, gain prestige and have a significant impact factor. This process is also hindered by the spam generated by often dubious quality OA publishers, so it is worth remembering here that there are several databases where it is possible to check the quality of OA journals, for example, [QOAM](#), [Scirev.sc.](#) [DOAJ](#). The sponsors of Plan S are aware of this risk and, in fact, the implementation of the project involves the review of rewarding methods, so as to correct some of the perverse effects of the incorrect use of indicators such as the impact factor, as well as the pressure to publish in a reduced number of journals. In this sense, cOAlition S adheres to the San Francisco Declaration (DORA), which aims to put an end to the practice of correlating the impact factor with the scientific merits of a researcher.

In the light of all these reactions, the first thing we need to do now is to analyse and respond to them, addressing the critical issues in order to define the best strategy and to complete the objectives of Plan S by 1 January 2020. ■