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**THE ORGANIZATION OF ACADEMIC LIFE IN FRANCE:  
RESEARCH CENTERS AND UNIVERSITIES, ACADEMIC JOURNALS,  
PUBLISHING HOUSES, LIBRARIES AND ARCHIVING CENTERS**

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*I will present here the current state of the organisation of academic life in France,  
without going into the development of open science policy, which I reserve for another report.*

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### **1. Academic research centers and universities**

Academic research and higher education in France are essentially public: research institutes, universities and scientific 'grandes écoles' belong to the State and are funded by public money, to which are added other sources of funding such as European contracts or those from foreign agencies, as well as a few contracts from private companies or charitable foundations. The tuition fees paid by students remain very low and well below the actual cost of studies, except recently for foreign students. Policy decisions are taken in Paris by the *MESR (Ministry of Higher Education and Research)* and the *OPECST (Office of the Parliament for Evaluating Scientific and Technological Choices)* which is made up of 18 MPs and 18 senators.

France's leading research institution is the *CNRS (National Center for Scientific Research)*, which was set up in 1939 by *Jean Zay, Irène Joliot-Curie* and *Jean Perrin*, who were respectively minister of education and under-secretary of state for research under the *Front Populaire*. In 2024 the *CNRS* has the largest number of researchers in Europe (see <http://www.researchranking.org/index.php?action=ranking> and <https://www.scimagoir.com>) with 32,000 employees including 11,000 researchers, 13,000 engineers and technicians and 7,000 contract staff spread across France in a large number of laboratories, most of which are attached to universities or 'grandes écoles', and there are also in few *CNRS* laboratories outside France. The second French research institution is the *CEA (Commissariat for Atomic and Alternative Energies)*, which was created in 1945 with *Frédéric Joliot-Curie* as its first director, and which is the third largest employer of researchers in Europe with 21,000 employees including 20,000 researchers attached to 10 research centres (5 for civil applications and 5 for military applications). The third French research institution is *INRIA (National Institute for Research in Informatic and Automatic)*, set up in 1967 as part of the 'Plan Calcul', which today has 4,000 employees including 1,700 researchers, working in 11 research centres, including one in Chile. Today, France also has 72 universities (all of them public) providing both teaching and research, as well as 227 public schools authorised to award the title of engineer, but only a small number of which carry out research in addition to their teaching activities.

Academic research and higher education in France are organised under the control of the *MESR*. However since 2013 the French government has given universities greater autonomy and created 25 university groupings, known as *COMUEs (Communautés d'Universités et d'Établissements)*, in order to pool some of their services, provide them with new sources of funding and give them greater visibility in international rankings. Despite these recent trends, research is still mainly centralised in Paris under the control of the *MESR*, as public funding is allocated in the form of calls from the *ANR (Agence Nationale pour la Recherche)* and various public bodies, such as the *CNES (Centre National d'Études Spatiales)*, but also from the *European Union* with the *ERC (European Research Council)* or various foreign funding agencies. This has the perverse effect of reducing the amount of time that researchers can devote to research, because the current organisation imposes deadlines for their funding applications and activity reports, while their research work can always wait...

## 2. Academic journals and publishing houses

The *Journal des Sçavans* was the first academic journal, its first issue dated January 1st 1665, followed three months later by the *Philosophical Transactions of the Royal Society* which first issue dated March 6th 1665. In 1835 the astronomer *François Arago* created the *CRAS (Comptes-Rendus de l'Académie des Sciences)*, published successively by several French publishers (*Bachelier, Gauthier-Villars* and *Masson*). In 1997 Elsevier bought *Gauthier-Villars* and *Masson*, but in 2018 the members of the *Académie des Sciences de Paris* decided not to renew the contract with *Elsevier* for publishing the *CRAS* journals of mathematics, mechanics, physics, geosciences, chemistry and biology which are now published by the *Centre Mersenne*, while the *CRAS* journal of paleontology is published by the *MNHN (National Museum of Natural History)*.

In 1945, the *CNRS* was mandated to 'develop scientific information and access to research work and data', therefore it created in 1986 its subsidiary *CNRS Editions* to publish books. In 1988, the French government set up in Nancy a national documentation center to provide access to research articles, the *INIST (Institut de l'Information Scientifique et Technique)* as a service unit of the *CNRS*. Since 1998, the French law stipulates that 'The mission of the public higher education service is to develop culture and disseminate knowledge and the results of research. [...] Institutions participating in this public service [...] may also publish and market scientific or technical works and periodicals or popularisation works' (article L123-6 of the Education Code).

In the 90s, a few publishers were the first to understand the benefits of electronic publishing which enable them to reduce the marginal cost of distribution if the number of journals published in this way is significant. This led *Elsevier* to acquire *Pergamon Press* in 1991, *Academic Press* in 2001 and *bepress* in 2019, among others. This move towards the commercialisation and financialisation of research publications by the few publishing houses, that dominate academic publishing at international level, has led to journals being sold in *bundles* and subscription prices rising to such an extent that library budgets can no longer keep up. Their lobbying is carried out by *STM (Science Technology Medicine)*, an international association set up in Amsterdam in 1994 which brings together more than 140 publishing houses and learned societies from 21 countries and accounts for 66% of academic publications. In France, this price crisis of academic journals led the *MESR* to set up in 1994 the *ABES (Agency of Bibliography for Higher Education)* to pay for subscriptions to journals on a group basis, as well as in 1999 the *Couperin (Unified Consortium of Universities and Research institutions for Accessing to Numerical Publications)* association which is responsible for negotiating subscriptions with publishers on a national basis in order to control price increases.

In 2017, three ministries (the *MESR*, the *Ministry of Culture and Communication* and the *Ministry of Education*) set up the *Conseil de l'Édition Scientifique* to address the crisis in academic publishing, as there was only one publisher left in France that published world-class academic journals, *EDP Sciences*, which had been founded in 1920 by a group of researchers, including *Marie Curie, Louis de Broglie, Paul Langevin, Jean Perrin* and *Léon Brillouin*, under the name *Les Éditions de Physique*. It belonged to *SFP (Société Française de Physique)* in order to continue the publication of the *Journal de Physique*, which had existed since 1872, and in 1997 it opened up to other disciplines and took the name *EDP Sciences (Editions Diffusion Presse Sciences)*, in which four learned societies were shareholders: 77.7% for *SFP*, 19.4% for *SCF (Société Chimique de France)*, 2.5% for *SFO (Société Française d'Optique)* and 0.4% for *SMAI (Société de Mathématiques Appliquées et Industrielles)*. Unfortunately, during the call for the renewal of the publication contract for its most famous journal, *Astronomy and Astrophysics* which is owned by the *SFP*, *Springer Nature* offered an unrealistic price, thus forcing *EDP Sciences* to accept a lower price in order to keep this journal. This dumping by *Springer Nature* brought *EDP Sciences* to the brink of bankruptcy in 2017, which was avoided thanks to a grant from the *MESR*, but in 2019 the four shareholders finally had to sell *EDP Sciences* to *CSPM (China Science Publishing and Media)*, a publishing house whose brand name is *Science Press* and in which the *Chinese Academy of Sciences* has a 74% stake. However, the staff and headquarters of *EDP Sciences* remain in France but it is a Chinese company and the press release published on the day of the sale clearly shows the benefits that China derives from this agreement: "This transaction is an important step for *CSPM* in implementing its international development strategy and will contribute to the upgrading of its scientific publishing activities. Once the sale has been completed, *CSPM* will be able to draw on the skills of *EDP Sciences* in France, its employees and its management to rapidly integrate into the European scientific publishing market and to

facilitate access to the Asian market for EDP Sciences and its customers. A 'Scientific Advisory Committee' will be set up by EDP Sciences and CSPM, in which representatives of the 4 learned societies and the French and European scientific communities will participate, in order to continue to advise EDP Sciences on issues such as the evolution of scientific fields, scientific publishing practices, Open Science and editorial ethics'.

Today, the commercial academic publishing houses operating in France have either disappeared or been bought up by foreign companies, and only a few academic publishing houses owned by research institutions, universities or learned societies remain. In 2019, publishers belonging to public bodies published 279 journals and 1,600 books, mainly in the SSH (*Humanities and Social Sciences*) but also in STM (*Science, Technology and Medicine*), aimed at the scientific community or a wider public. In mathematics, the journals published in France belong to either the IHES (*Institut des Hautes Etudes Scientifiques*), IHP (*Institut Henri Poincaré*), UGA (*Université Grenoble Alpes*), Université de Toulouse III, Ecole Normale Supérieure de Rennes, Presses de l'Ecole Normale Supérieure, Editions de l'Ecole Polytechnique, or belong to three learned societies which are the SMF (*Société Mathématique de France*), SFdS (*Société Française de Statistique*) and SMAI (*Société de Mathématiques Appliquées et Industrielles*). They can be accessed either by subscription, hybrid access, open access, or by using the new S2O (*Subscribe to Open*) model.

### 3. Academic libraries and archiving centers

Every university has a library for students and researchers, but the advent of digital access has led to the disappearance of many small libraries that were attached to laboratories. However, the case of mathematics is different, as several small libraries have survived and there are large mathematics libraries attached to institutions of international renown, such as IHP (*Institut Henri Poincaré*), IHES (*Institut de Hautes Etudes Scientifiques*), CIRM (*Centre International de Rencontres Mathématiques*), ENS (*Ecole Normale Supérieure Paris*) and several major universities. Mathematics libraries work closely together at a national level, and in 1983 they set up the RNBM (*Réseau National des Bibliothèques de Mathématiques*, <https://www.rnbm.org/>) to help each other select journals, negotiate subscriptions and share long-term archiving. In the past, each library selected the journals it wanted to subscribe to on the basis of its users' needs and negotiated the contracts, which were paid for out of its budget. However, since in the 1990s the publishing houses that dominated the market, such as Elsevier, Springer and Taylor&Francis, increased the price of subscriptions and introduced 'bundle' purchasing, these negotiations have now been pooled at national level and carried out by a few librarians who have been appointed by the association Couperin in order to better control the cost of subscriptions.

The CNRS also plays an important role in access to scientific articles, with a department dedicated to this, the DIST (*Direction de l'Information Scientifique et Technique*), which has become the DDOR (*Direction des Données Ouvertes de Recherche*) since in 2018 the MESR set up the first *Open Science Plan* to support researchers and academic journals in opening up research articles and data. In 2015, the private-law subsidiary INIST Diffusion, which marketed INIST's documentary services, went bankrupt and was integrated into CNRS. Since 2017 INIST has been developing various digital tools, including the ISTE platform, which provides access to a digital corpus of more than 27 million scientific publications, preacquired under national license and available for TDM (*Text and Data Mining*) analysis to all researchers in French public institutions.

As far as mathematics publications are concerned, INSMI (*Institut National de Sciences Mathématiques et leurs Interactions*) of CNRS has played a central role in the creation of Mathdoc (<https://www.mathdoc.fr/>) and NUMDAM (<http://www.numdam.org/>), two digital platforms which provide access to the full texts of a very large number of mathematics journals, conference proceedings, doctoral theses and books, either immediately or after an embargo of no more than 6 months, thanks to the *Digital Republic Law* (*Loi pour la République Numérique*) that France passed in 2016. As regards the archiving of mathematics publications, the strong interaction between libraries within the framework of the RNBM has made possible to set up since 2016 the PCMath (*Plan de Conservation partagée des périodiques imprimés de Mathématiques*, <https://www.rnbm.org/gt-pcmath/>), which aims to coordinate at national level the conservation, in the best possible conditions, of printed collections of mathematics periodicals in order to guarantee their perennial

access to the scientific community.

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***Post-scriptum***

While the organisation of academic research and higher education in France remains fairly homogeneous compared with that of the Anglo-Saxon world, its evolution over the years has tended to accumulate various institutional layers whose co-ordination remains centralised in Paris. All too often, this leads to 'gas factories' to 'manage' French research and give it international visibility, the operation of which is poorly understood by researchers, given the increasing pile-up and complexity of the structures that have been put in place. For example, I am a *CNRS DR1 (Director of Research)*, which is just a title because I don't manage anyone of *INSMI* and I have been working since 1981 at the *LMD (Laboratoire de Météorologie Dynamique)* on the *ENS Paris* campus. So when I write an article I have to cite as affiliations the nine institutions to which I am attached: *CNRS, INSMI, LMD, ENS, PSL (Paris Sciences Lettres), IPSL (Institut Pierre-Simon Laplace), Sorbonne Université, Ecole Polytechnique* and *Université Paris-Saclay*. It could be that my articles are counted several times in the indicators measuring the 'scientific productivity' of French research... This remains to be verified.

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