



INSTITUT DE FRANCE
Académie des sciences



Prospective en science ouverte

Mardi 2 avril 2019 de 9h30 à 17h00

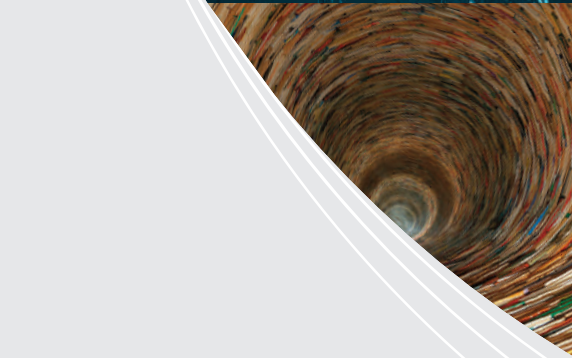
Grande salle des séances

Institut de France

23, quai de Conti, 75006 Paris

La technologie numérique peut, parmi ses très nombreuses applications, permettre la mise à disposition des résultats de la science au plus grand nombre. D'ailleurs, dès les années 2000 l'accès ouvert proposé par certaines revues scientifiques avait déjà permis d'élargir le lectorat bien delà du public des abonnés des revues traditionnelles. L'accélération de l'ouverture de la science qui est en cours devrait changer les pratiques du monde de la recherche et aura par conséquent des retombées sur les relations de la science avec le monde économique et avec la société. Avec cette transition vers une science ouverte se poseront inmanquablement des problèmes liés à l'éthique, l'intégrité et l'évaluation de la science et des chercheurs, problèmes sur lesquels les chercheurs eux-mêmes, les académies et les sociétés savantes auront à se pencher.

L'ouverture de la science relèvera en outre d'un nouveau modèle économique qui reste à définir tout en veillant à éviter les dérives budgétaires. Et enfin, puisque la science ne peut se concevoir qu'à un niveau international, l'un des défis majeurs de cette transition est l'harmonisation des politiques nationales en la matière. Ces thèmes seront abordés par les intervenants de ce colloque, des experts du sujet ainsi que des responsables de cette transition en France et dans plusieurs pays européens.



The organizers



Jean-François BACH

Immunologist, Emeritus Professor at the University Paris Descartes and Honorary *Secrétaire perpétuel* of the *Académie des sciences*, France

Jean-François Bach's main scientific contributions concern the normal and pathological immune system. The results of his extensive experimental work in animal models have enabled him to develop new immunotherapy strategies able of inducing long-term remission of insulin-dependent diabetes in mice and then in humans.



Pascale COSSART

Microbiologist, Professor at *Institut Pasteur*, *Secrétaire perpétuel* of the *Académie des sciences*, France

Pascale Cossart's research focuses on the study of molecular and cellular mechanisms implicated in bacterial infections, using the bacterium *Listeria monocytogenes* as a model. She was a pioneer in a discipline that she named "Cellular Microbiology". She highlighted numerous strategies used by bacteria during infection. Her work has been recognized by several international prizes.



Denis JEROME

Physicist, Emeritus research Director at CNRS, member of the *Académie des sciences*, France

Denis Jerome developed, at Paris-Sud University, the study of metals and alloys under high pressure and low temperature, in particular the various electronic phases of low-dimensional materials. He discovered the phenomenon of superconductivity in organic matter. In parallel, for the last thirty years, he has worked as editor of various European physics journals and contributed, in 1998, to the merger of German, French and Italian physics journals.



Étienne GHYS

Mathematician, research Directorat CNRS, *Secrétaire perpétuel* of the *Académie des sciences*, France

Étienne Ghys contributed to the creation and development of the mathematics laboratory of *ENS de Lyon*. His scientific work focuses on geometry, topology and dynamic systems. In recent years, he has been involved in several science dissemination activities, such as the production of mathematical films and the creation of an online magazine for the general public. For those actions, he was awarded the first Clay Award for Dissemination of Mathematical Knowledge.



Bernard MEUNIER

Chemist, Emeritus research Director at CNRS, member of the *Académie des sciences*, France

Bernard Meunier has been an associate Professor at the *Ecole polytechnique* in Palaiseau (1993-2006), President of the CNRS (2004-2006) and past President of the *Académie des sciences*. Specialist in oxidation chemistry, Bernard Meunier is also interested in pharmacology and has designed new antimalarial molecules as well as specific copper chelators for therapeutic use in Alzheimer's disease.

Programme

- 09:30** **Bienvenue**
Pascale COSSART, microbiologiste, professeur à l'Institut Pasteur, secrétaire perpétuel de l'Académie des sciences, France
Denis JEROME, physicien, directeur de recherche émérite au CNRS, membre de l'Académie des sciences, France
- 09:45** **Allocution de Mme Frédérique VIDAL, ministre de l'Enseignement supérieur, de la recherche et de l'innovation, France**
- 10:05** **L'adaptation de la science au 21^e siècle proposée par l'Union Européenne**
Jean-Éric PAQUET, directeur général Recherche et Innovation à la Commission européenne
- 10:35** **Evaluation par les pairs : une nécessité et des problèmes**
Jean-François BACH, immunologiste, professeur émérite à l'université Paris Descartes et secrétaire perpétuel honoraire de l'Académie des sciences, France
- 11:05** **Pause café**
- 11:30** **Science ouverte au Pays Bas**
Karel LUYBEN, chimiste, *Rector Magnificus Emeritus* à l'université de technologie de Delft Pays-Bas
- 12:00** **Episciences : une plateforme pluridisciplinaire et exemplaire pour des épijournaux en libre accès**
Jean-Pierre DEMAILLY, mathématicien, professeur à l'université de Grenoble, membre de l'Académie des sciences, France
- 12:30** **Publications scientifiques, confiance et ouverture**
Elisa DE RANIERI, physicienne, *Editor in Chief* à *Nature Communications*, Royaume-Uni
- 13:00** **Pause déjeuner**
- 14:00** **La diversité de la communauté scientifique face aux publications**
Jean-Pierre BOURGUIGNON, mathématicien, professeur honoraire à l'Institut des Hautes Études scientifiques, président du *European Research Council*, Commission européenne
- 14:30** **Un changement de paradigme pour la publication scientifique**
Horst HIPPLER, physico-chimiste, ancien président de la *German Rectors' Conference*, Allemagne
- 15:00** **Changement des règles du jeu avec l'accès ouvert**
Thierry GALLI, neurobiologiste, directeur de l'Institut de Psychiatrie et Neurosciences de Paris, INSERM, France
- 15:30** **La science ouverte : de quoi s'agit-il ?**
Geneviève ALMOUZNI, biologiste, chef de l'équipe *Chromatin Dynamics* de l'Institut Curie, membre de l'Académie des sciences, France
- 16:00** **Mise en œuvre de la science ouverte dans l'édition scientifique**
Thomas LEMBERGER, biologiste, chef de *SourceData*, EMBO, Allemagne
- 16:15** **Science ouverte ou fermée, que préfère un journaliste ?**
David LAROUSSE, physicien, journaliste au *Monde*, France
- 16:45** **Conclusion - Vers un monde ouvert**
Pierre CORVOL, médecin et scientifique, président de l'Académie des sciences, administrateur honoraire du Collège de France

Program

- 09:30** **Welcome addresses**
Pascale COSSART, Microbiologist, Professor at the *Institut Pasteur, Secrétaire perpétuel* of the *Académie des sciences*, France
Denis JEROME, Physicist, Emeritus research Director at CNRS, member of the *Académie des sciences*, France
- 09:45** **Address from Ms. Frédérique VIDAL, *Ministre de l'Enseignement supérieur, de la recherche et de l'innovation***
- 10:05** **The European Union's approach to make science fit for the 21st century**
Jean-Éric PAQUET, Director General Research and Innovation, European Commission
- 10:35** **Peer-reviewing: need and problems**
Jean-François BACH, Immunologist, Emeritus Professor at the University Paris Descartes and Honorary *Secrétaire perpétuel* of the *Académie des sciences*, France
- 11:05** **Coffee Break**
- 11:30** **Open Science in the Netherlands**
Karel LUYBEN, Chemist, Rector Magnificus Emeritus Delft University of Technology, Netherlands
- 12:00** **Episciences: a plural disciplinary and fair open access overlay journal platform**
Jean-Pierre DEMAILLY, Mathematician, Professor at Grenoble University, member of the *Académie des sciences*, France
- 12:30** **Research publications, trust and openness**
Elisa DE RANIERI, physicist, Editor in Chief, Nature Communications, United Kingdom
- 13:00** **Lunch break**
- 14:00** **Facing the diversity of the scientific community *vis-à-vis* publishing**
Jean-Pierre BOURGUIGNON, Honorary Professor at *Institut des Hautes Études scientifiques*, President of the European Research Council, European Commission
- 14:30** **Ways to paradigm shift in scientific publishing**
Horst HIPPLER, Physico-chemist, former President of the German Rectors' Conference, Germany
- 15:00** **The game-changing effect of open access**
Thierry GALLI, Neurobiologist, Director of the Institute of Psychiatry and Neuroscience of Paris, INSERM, France
- 15:30** **Open Science - what does it mean?**
Geneviève ALMOUZNI, Biologist, Head of the Chromatin Dynamics team at *Institut Curie*, member of the *Académie des sciences*, France
- 16:00** **Implementing open science in scientific publishing**
Thomas LEMBERGER, Biologist, Head of SourceData, EMBO, Germany
- 16:15** **A journalist lost in transition (from a closed world to an open one)**
David LAROUSSERIE, Physicist, Journalist at *Le Monde*, France
- 16:45** **Conclusion - Towards an open world**
Pierre CORVOL, Physician and scientist, President of the *Académie des sciences*, honorary administrator of *Collège de France*

Bios and abstracts

Frédérique VIDAL

Ministre de l'Enseignement de supérieur, de la recherche et de l'innovation

Before being appointed *Ministre de l'Enseignement supérieur, de la recherche et de l'innovation*, Frédérique Vidal was President of the University Nice Sophia-Antipolis (UNS) since 2012.

She obtained her master's degree in biochemistry at the University of Nice Sophia-Antipolis, a D.E.A. from the Institut Pasteur, and a doctorate from the University Nice Sophia-Antipolis, where she was recruited as a lecturer in 1995. Frédérique Vidal was (since 2004) university professor in biochemistry, molecular and cellular biology at the UNS.



Jean-Éric PAQUET

Director General Research and Innovation, European Commission

Jean-Eric Paquet has been working as the Director-General for Research and Innovation (DG RTD) since April 2018. He started working with the European Commission in 1993. From 2002 until 2004, he was the Deputy Head of Cabinet of former Commissioner for Research, Philippe Busquin. Then he worked as a Head of Unit within the DG Mobility and Transport before becoming the Director. In 2013, he joined the DG for Neighbourhood and Enlargement Negotiations. Before starting his current position, Mr Paquet served as Deputy Secretary General of the Juncker Commission.



Adaptation de la science au 21^e siècle proposée par l'Union Européenne **The European Union's approach to make science fit for the 21st century**

Jean-François BACH

Immunologist, Emeritus Professor at the University Paris Descartes and Honorary Secrétaire perpétuel of the Académie des sciences, France

Jean-François Bach's main scientific contributions concern the normal and pathological immune system. The results of his extensive experimental work in animal models have enabled him to develop new immunotherapy strategies able of inducing long-term remission of insulin-dependent diabetes in mice and then in humans.



Evaluation par les pairs : une nécessité et des problèmes **Peer-reviewing: need and problems**

A poor peer review has serious consequences by allowing the proliferation of low quality articles that dilute the good articles, making it difficult to identify them. The extreme case is that one of predator journals that publish non-reviewed articles. These remarks do not invalidate the deposit of articles on open archives, which should certainly be encouraged, but underline the interest of post-deposit reviews proposed in the epijournal model. The reviewing of articles has two distinct functions: sorting the best articles and improving the quality of manuscripts. However, the implementation of the reviewing must not weight too much and must not pervert the publication process. The current multiplicity of journals, the very high rejection rate of some journals, lead to a multitude of reviews posing considerable problems for publishers who face great difficulties in finding experts of undeniable value. Too often, reviewing is more about form than substance, not putting the originality of the work in the foreground. Ethical issues, particularly conflicts of interest, warrant further reflection. The problem of the publication of reviews and the lifting, at least partially, of anonymity must be discussed. The scientific competence of the publishers making the final decision on whether or not to accept the article must be ensured. The quality of peer review, central to the scientific life, is a complementary necessity to the fully open access of publications.



Karel LUYBEN

Chemist, Rector *Magnificus Emeritus* Delft University of Technology, Netherlands

Karel Luyben is Rector Magnificus Emeritus of the Delft University of Technology as of 2018. He has been Rector Magnificus of the Delft University of Technology from 2010 till 2018. Before that he served as Dean of the Faculty of Applied Sciences for almost 12 years. Among others he is presently the Vice President of the Economic Board Zuid-Holland; the Chairman of the Board of the Dutch Techcentre for Life Sciences; Chairman Taskforce Open Science of CESAER; a member of the Open Science Policy Platform of the EU; Member of the OECD-GSF Expert Group on Data Competences and Skills for Open Science and National Coordinator for Open Science in the Netherlands. As of 2019 he is the Chair of the Executive Board of the EOSC (European Open Science Cloud).

Science Ouverte aux Pays-Bas

Open Science in the Netherlands

Open Science can be seen as a systemic change in the way research is performed, disseminated, evaluated, funded and rewarded. The aim is to make the development of science more transparent, faster and easier to verify. This transition, we call Open Science, is characterized by three main developments: Open Access; FAIR Data; and Citizen Science. In 2017 the Netherlands presented its National Plan Open Science aimed at stimulating the development of open science. Since the launch of the National Programme several of our ambitions for 2020 have come within reach. The following phase (2020 – 2030) of the programme, strongly supported by the Ministry of Education, aims primarily at proper research data stewardship. The presentation will address open science, its boundary conditions, and the need for aiming at FAIR data; data that is Findable, Accessible, Interoperable and Reusable. Special attention will be given to the national research data services infrastructure needed for open science. This should also form the link to the European Open Science Cloud (EOSC), a federated structure of data repositories and related services.



Jean-Pierre DEMAILLY

Mathematician, Professor at Grenoble University, member of the *Académie des sciences*, France

Jean-Pierre Demailly obtained his PhD (*Doctorat d'Etat*) in mathematics at the University Paris VI under the supervision of Henri Skoda.

Demailly's mathematical work mainly concerns complex analytical geometry. It uses techniques of analysis and complex differential geometry, and has applications in algebraic geometry or number theory. Jean-Pierre Demailly is currently professor at Joseph Fourier University, senior member of the *Institut Universitaire de France* and member of the *Académie des sciences*.

Episciences : une plateforme pluridisciplinaire et exemplaire pour des épijournaux en libre accès

Episciences: a plural disciplinary and fair open access overlay journal platform

Episciences is an open access electronic publishing platform hosted since 2013 by the *Centre pour la Communication Scientifique Directe* (CCSD), under the auspices of CNRS, INRIA and *Université de Lyon*. It is entirely free to authors, readers and editorial board members.

The journals hosted by Episciences, called epijournals, are either new publications or existing journals moving to open access; they include a dozen of titles in mathematics, computer science and social sciences, with more to come. The Episciences platform provides automated procedures to feed the epijournal web sites and organize anonymous communication channels between authors and referees. Manuscripts are to be submitted first to an open archive such as arXiv or HAL. Corrected and properly typeset manuscripts are then returned in their final form on the original open preprint archive, at the same time they are indexed on the web site of the epijournal.

The editorial management policy is left free by the platform, the preferred source document formats being (La)TeX or PDF. Dedicated "Epicommittees", the role of which is to pay attention to ethics and quality issues, supervise various disciplinary fields.

Elisa DE RANIERI

Physicist, Editor in Chief, Nature Communications, United Kingdom

Elisa de Ranieri is the Editor-in-Chief at Nature Communications. Previously, she was the Head of Editorial Process and Data Analytics for the Nature-branded journals, and an editor at Nature Nanotechnology and Nature Energy. Her background is in electronic engineering and, prior to her career in publishing, she obtained a PhD in physics from the University of Cambridge and was a postdoctoral researcher at the Hitachi Cambridge Laboratory.



Publications scientifiques, confiance et ouverture

Research publications, trust and openness

Scientific publications contribute to the robustness of science by implementing rigorous peer review processes and developing policies and standards that foster research integrity and ethics. They work with researchers to shape more effective and efficient ways of communicating scientific results, to both peers and the public. Publications can support the research community in the calls for increased levels of transparency in relation to: data sharing, particularly for images; peer review processes; and more. Transparency and openness are necessary if science is to remain a trustworthy endeavour, particularly in the eyes of the public who fund a large fraction of research activities, and in the age of « fake news ». Openness can ultimately lead to a reduction in the amount of public money currently spent on irreproducible results, or on unnecessary replications. However, it needs to be managed carefully as it can also lead to misunderstandings leading to distrust. Publications can lead the way and innovate in publishing practices that will make the research output more accessible and reusable.

Jean-Pierre BOURGUIGNON

Mathematician, Honorary Professor at *Institut des Hautes Études scientifiques*,
President of the European Research Council, European Commission

Jean-Pierre Bourguignon is the President of the European Research Council since January 2014. Prior to that, he was the Director of the *Institut des Hautes Études Scientifiques* (IHÉS) from 1994 till 2013. A mathematician by training, he spent his whole career as a fellow of CNRS. He held a Professor position at *École polytechnique* from 1986 to 2012. From 1990 to 1992, he was President of the *Société Mathématique de France* and President of the European Mathematical Society from 1995 to 1998. He is a former member of the Board of the EuroScience organisation (2002-2006) and served on EuroScience Open Forum (ESOF) committees since 2004.



La diversité de la communauté scientifique face aux publications

Facing the diversity of the scientific community vis-à-vis publishing

The conditions in which research results are produced vary greatly from one discipline to another and from one project to another. This influences the format, volume and content of publications: text with the result in extenso or summary; description of the experiment but then with what level of details? The same applies to the number of authors. This has led to different established practices for publishing: articles in journals with abstracts, conference proceedings, monographs, etc. The current revolution in access to information has affected these different eco-systems, but not as much as one might think. This diversity affects the use of bibliometrics: common in some disciplines and almost never done in others. Therefore, any evolution of the eco-system around publications has to be done with caution and in a non-dogmatic way. The economic state of the problem only increases the complexity and need to find solutions adapted to the various practices.



Horst HIPPLER

Physico-chemist, former President of the German Rectors' Conference, Germany

Horst Hippler was President of the German Rectors' Conference (Hochschulrektorenkonferenz – HRK) from May 2012 until the end of July 2018. From 1993 to 2012 he was Professor of Physical Chemistry at the University of Karlsruhe, today Karlsruhe Institute of Technology (KIT). From 2002 Horst Hippler served first as Rector of the University of Karlsruhe and from 2009 to 2012 as President of the KIT.

Currently, Horst Hippler is spokesperson for the project steering committee of the Project DEAL, an initiative by the Alliance of Science Organisations in Germany – represented by the German Rectors' Conference (HRK). The goal of the project is to conclude nationwide licensing agreements for the entire portfolio of electronic journals (E-journals) from major academic publishers from the 2017 licence year.

Un changement de paradigme pour la communauté scientifique

Ways to paradigm shift in scientific publishing

The goal of Project DEAL in Germany is to conclude nationwide licensing agreements for the entire portfolio of electronic journals (E-journals) from major academic publishers. The intention is also to bring about significant change to the status quo in relation to negotiations, content and pricing in the process. The effects of a consortium agreement at the national level should relieve the financial burden on individual institutions and bring wide-scale, lasting improvements in access to scholarly literature for academics. The transformation towards golden open access has to be achieved.

The potential exists for several hundred institutions – such as universities, universities of applied sciences, research institutions, state and regional libraries – to participate in such a DEAL licence.

The initiative was commissioned by the Alliance of Science Organisations in Germany – represented by the German Rectors' Conference. In my quality of spokesperson for the project steering committee, I will report on recent developments.



Thierry GALLI

Neurobiologist, Director of the Institute of Psychiatry and Neuroscience of Paris, INSERM, France

Former student of ENS Lyon, Thierry Galli was trained in Biochemistry and obtained his PhD in Neuropharmacology (J Glowinski, dir.) at the *Collège de France* in 1992. Following postdoctoral research on the molecular and cellular biology of exocytosis with P De Camilli at Yale University School of Medicine, he was recruited by INSERM at the *Institut Curie* (D Louvard's lab) in 1995. In 2005, he was appointed Group Leader at the *Institut Jacques Monod*, Paris. Since 2015, he is the director of the Institute of Psychiatry & Neuroscience of Paris.

Changement des règles du jeu avec l'accès ouvert

The game-changing effect of open access

Electronic publication was originally a simple online transposition, with supplements, behind paywalls, of the peer-reviewed printed articles previously locked in libraries. Nowadays, electronic articles are a complex combination of rich content, including hyperlinks, raw data, peer reviews, links to detailed protocols, and connection to an infinite range of media. Open access now opens up the capacity for communication and dissemination of science. In particular, pre-print servers, new journals, and platforms for comments, all born in the electronic age, are changing the rules of the game previously controlled by major publishers and scientific societies. The game-changing effect of open access requires the adoption of new rules for peer review and evaluation of research and to reconsider the role of publishers. My talk will focus on the impact of preprints, open peer-review, open data and the application of DORA (declaration on research assesment) in life science research.

Geneviève ALMOUZNI

Biologist, Head of the Chromatin Dynamics team at *Institut Curie*, member of the *Académie des sciences*, France

Geneviève Almouzni is research director of exceptional class at CNRS. Her research focuses on genetic and epigenetic information transmission in the eukaryotic cell. Her work unraveled the mechanisms of chromatin assembly, their fidelity and regulation and their impact on cancer. She was in charge of the Nuclear Dynamics and Plasticity Unit of the Genome and is now heading the chromatin dynamics team at *Institut Curie*. She also coordinated the European EpiGeneSys network, and currently chairs the EU-Life alliance. Member of the *Académie des sciences*, she is also a member of several foreign academies.



La science ouverte : de quoi s'agit-il ?

Open Science - what does it mean?

The question is raised today about the meaning of Open Science (OS). This movement aims to make scientific research, data and their dissemination available to any member of an inquiring society, from professionals to citizens. This fundamental issue was already raised at the time of Galileo who used anagrams that he would send to his competitors to describe his findings. Their meaning would be revealed later if one of his competitors claimed to have made a similar discovery, a means to ensure to get the credit for the discovery first. These practices already changed in the 17th and 18th centuries and the model became to reveal new discoveries to a journal. This could be viewed as a first revolution towards Open Science. Today, new tools with the digital world can enable a second open science revolution. Thus, under the umbrella term of « Open Science », from development to dissemination of knowledge, new concepts have emerged impacting scientists, the public, funding agencies, learning societies and the various publishing structures. (FOSTER), an European-funded project, has developed an OS taxonomy tree in an attempt to map the open science field. By raising issues at stake, the debate with the audience will be opened.

Thomas LEMBERGER

Biologist, Head of SourceData, EMBO, Germany

Thomas Lemberger is Deputy Head of Scientific Publications at EMBO (embo.org) in Heidelberg, Germany, Chief Editor of the open access journal Molecular Systems Biology (msb.embopress.org) and Head of the SourceData project (sourcedata.embo.org). Trained as a molecular biologist, Thomas Lemberger joined EMBO as scientific editor in 2005 and assumed the editorial oversight of Molecular Systems Biology since launch of the journal. He has recently initiated the SourceData project to build an open platform that bridges open science and scientific publishing.



Mise en oeuvre de la science ouverte dans l'édition scientifique

Implementing open science in scientific publishing

Scientific progress depends on efficient sharing of reliable research findings. Maintaining the quality and the reproducibility of globally shared datasets will be the condition sine qua non for the success of open science. As we transition towards the open sharing of research data, it will be crucial to integrate the peer-reviewed and publishing process with the emerging open science infrastructure.

To address this important challenge, EMBO has built the SourceData platform (<http://sourcedata.io>) that makes the data in research papers directly searchable. Combining artificial intelligence and expert curation, SourceData describes the contents of figures from scientific articles in a standardized, machine-readable format, allowing articles to be searched and interlinked based on their data content. In collaboration with BioStudies from EMBL-EBI, a database that aggregates the data files linked to a specific publication or project, SourceData implements a fully integrated workflow to make published data openly accessible and easy to find, thus implementing open science principles at the heart of the scientific publishing process.



David LAROUSSERIE

Physicist, Journalist at *Le Monde*, *Sciences et Avenir*, writer, France

David Larousserie has been working as journalist in *Le Monde* (French journal) Science department since 2011. He reports on scientific discoveries mainly in physics, mathematics and computer science. He also covers research policy issues (funding, publishing, scientific integrity, etc.). He has a Ph.D in physics (1999) and a degree from *Ecole Polytechnique*.

Science ouverte ou fermée, que préfère un journaliste ?

A journalist lost in transition (from a closed word to an open one)

Will the current evolutions of research systems towards more openness also modify the practice of journalists working in the scientific field?

A priori, such changes could only be positive, given that information (scientific or not) processing can only benefit from greater openness.

To understand why the answer to this question is not so simple, one must look into the backdoor of journalism on "closed" sciences. We will see that the current situation is not so uncomfortable for the profession but this might no longer be the case in a more "open" scientific world. We will also see that the openness claimed is accompanied by "closures", which are detrimental to journalistic activity.



Pierre CORVOL

Physician and scientist, President of the *Académie des sciences*, honorary administrator of *Collège de France*

Pierre Corvol, doctor and scientist, is Professor Emeritus at *Collège de France*. His research has focused on the study of hormonal mechanisms that regulate blood pressure. He established the crucial role of the renin-angiotensin-aldosterone system in controlling renal and cardiac function. His team's work has contributed to the development of treatments commonly used in treating high blood pressure and cardiovascular diseases. He conducted the first studies on the genetics of human hypertension and recently worked on the role of vasoactive peptides in the mechanisms of angiogenesis.

Conclusion - vers un monde ouvert

Conclusion - Towards an open world

Notes

A series of 25 horizontal dotted lines for writing notes.



INSTITUT DE FRANCE
Académie des sciences

Foresighting open science

Tuesday April 2, 2019

from 9:30 am to 5:00 pm

Grande salle des séances - Institut de France

23, quai de Conti, 75006 Paris

Among its very many applications, digital technology can open to an ever growing audience the access of the results of scientific research. Already in the 2000's some scientific journals initiated the open access to publications and thereby extended readership well beyond the traditional subscribers. The acceleration of the open science process which is on the way affects inevitably the way research is conducted and will also modify as a consequence the relation between the world of science and the world of economics and society. This transition towards open science will also raise questions related to ethics, integrity and evaluation of scientific results as well as that of researchers themselves. These are questions which researchers, academies and learned societies will have to tackle and find an answer to. Furthermore, open science entails a new economic paradigm which has yet to be defined, whilst finding ways of avoiding excessive publications costs. And finally, since scientific research can only be conceived nowadays at an international level, one of the major challenges of this transition will be the harmonizing of all different national scientific policies.

Inscriptions ouvertes au public dans la limite des places disponibles.

www.academie-sciences.fr

(rubrique «prochains évènements»)