

# The CNRS finds applications for the results of its research laboratories

## A NETWORK FOR INNOVATION

The CNRS Innovation and Business Relations Department (DIRE) monitors and facilitates the cycle of innovation.

→ It coordinates **300** technology transfer professionals, **18** CNRS regional partnership and technology transfer departments, and FIST SA, a subsidiary dedicated to industrial applications, managing the CNRS patent portfolio and negotiating operating agreements ([www.fist.fr](http://www.fist.fr)).

→ The CNRS also relies on the local action of the **14** technology transfer companies (SATTs) in which it is a shareholder.

→ Each year, the CNRS allocates **€18 million** (excluding payroll costs) to technology transfer.



## BUILDING PARTNERSHIPS WITH INDUSTRY

From startups to multinationals, the CNRS offers an array of solutions to help companies develop their R&D capacity. It works closely with industry through **about a hundred public/private research units**, 2,000 research contracts each year and **26 framework agreements** with large corporations (EDF, Essilor, Safran, Thales, etc.).



## TRANSFERRING TECHNOLOGY

With **4,535 patents** and **1,237 active licenses**, the CNRS guarantees the protection of its laboratories' results. The DIRE registers patents, signs licensing agreements and supports the creation of innovative businesses with FIST SA and the SATTs.



## PROMOTING BREAKTHROUGH INNOVATION

→ The CNRS earmarks **€2 million annually** to help bring projects with strong innovation potential to fruition.

→ The CNRS concentrates its efforts, both at the national and international level, on key fields of expertise, or "CNRS Transfer Focus" areas.



## CREATING BUSINESSES

As a driver of economic growth, the CNRS takes pride in the launch of more than **1,000 innovative companies**, generating **7,000 jobs** (Innoveox, SuperSonic Imagine, WatchFrog, etc.) since 1999. It provides support for entrepreneurs at every stage of the startup process, through consulting and coaching, simplified administrative procedures, tailored financial conditions and equity investment through FIST SA. In addition, the CNRS participates in the development of a seed capital fund for the benefit of innovative startups.



## SHARING KNOWLEDGE

Each year, the CNRS gives access to its laboratories and technological platforms for **180 short training sessions** in key areas. Its experts also provide training at companies' premises. <https://cnrsformation.cnrs.fr>

The CNRS services, including consulting, expertise, assessments, publishing, thesis supervision and laboratory experience promote interaction between researchers and industry on innovative projects.

As the organizer of high-profile events on innovation-oriented themes ("Innovatives" forums [www.innovatives.cnrs.fr](http://www.innovatives.cnrs.fr)), or "Start-up Connexion" calls for proposals) and a participant in business seminars and conferences, the CNRS reaches out to the socio-economic world.

## THE 20 "CNRS TRANSFER FOCUS" AREAS FOR INNOVATION

Graphene and 2D nanomaterials  
 Memory technology (magnetism, spintronics)  
 Optoelectronics - Therapeutic light sources  
 Optoelectronics - LED  
 Optoelectronics - THz sources  
 Oncology - Immunotherapy  
 Oncology - Biomarkers  
 Oncology - Tumor stem cells  
 Oncology - Epigenetics  
 Alzheimer's  
 HIV  
 Dermocosmetics  
 Molecular imaging agents  
 Batteries  
 Organic photovoltaic solar energy  
 Thin-film photovoltaic solar energy  
 Lignocellulosic biomass applications  
 Industrial use of CO<sub>2</sub>  
 Service robotics  
 Big data



20 Nobel Prize laureates

12 Fields Medal winners

1<sup>st</sup> beneficiary of the European Research Council's Consolidator Grants (2014)

1<sup>st</sup> place in the *Nature Index* (2014)

1<sup>st</sup> place in the *Scimago Institutions Rankings* (2014)

## THE CNRS AT A GLANCE

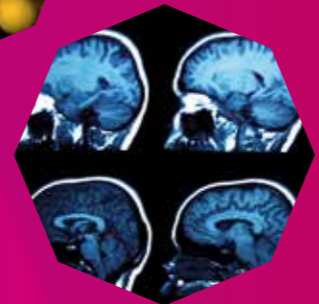
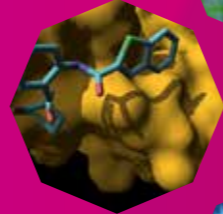
The French National Center for Scientific Research, or CNRS, is a public research organization. Its **10 specialized institutes** cover all scientific disciplines, from the humanities and social sciences to biological sciences, nuclear and particle physics, information sciences, engineering and systems, physics, mathematical sciences, chemistry, Earth sciences and astronomy, and ecology and the environment.

The CNRS operates **1,025 joint research units**, of which 35 are outside of France. With a budget of €3.2 billion, it is home to **32,544 researchers, engineers and technicians**. The organization is also involved in the development and operation of large-scale research facilities, including telescopes, particle accelerators, supercomputers and very large databases.

7<sup>th</sup> largest patent filer in France in 2014 (INPI)

Listed in the 2014 *Thomson Reuters Top 100 Global Innovators*

Every year, the CNRS awards its **Gold Medal** and **Medal of Innovation**.



# CNRS

a Driver of Innovation

A leading research player at the heart of scientific, technological and societal challenges, the CNRS provides businesses with solutions for innovation.



www.cnrs.fr

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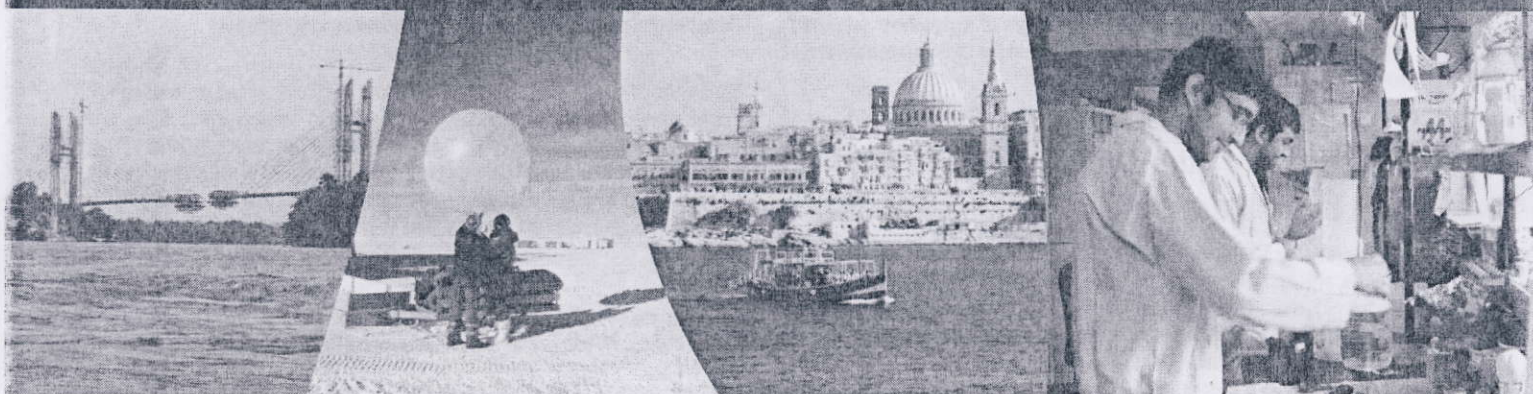
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# DERCI | European Research and International Cooperation Department



Patrick Nédellec,  
Director of DERC

## DERCI's mission

The European Research and International Cooperation Department (DERCI) implements and promotes CNRS's European and international cooperation policy. Single point of entry for French and foreign institutional partners with regard to the organization's international initiatives, it performs the following missions:

- selecting thematic and geographical priorities, setting up win-win cooperations and structuring partnerships;
- making CNRS's international initiatives an essential tool to enhance French research attractiveness and visibility abroad;
- improving dialog and joining forces with other organizations, universities and alliances to propose coordinated initiatives at the European and international level.

## CNRS international strategy

### International influence

CNRS's notoriety abroad is illustrated by hundreds of structuring initiatives, which the organization has formalized with its foreign partners. Around

55,000 missions are also carried out throughout the world each year. In addition, over 200 researchers (including secondees) perform research in foreign institutions for durations of one year or over. Joint publications with international partners also bear witness to CNRS's international vitality. They make up over half of the organization's publications.

### Attractiveness

Around 50 official delegations visit CNRS every year. This testifies to international partners' interest, not only in CNRS laboratories but also in its research organization and governance. With 30% foreign researchers recruited in 2012, CNRS is widely accessible to international scientists.

## International cooperation tools

CNRS's international cooperation tools are structured at multiple levels:

- Bilateral conventions established by CNRS make it possible to organize researchers' mobility in order to set up new collaborations.
- International Programs for Scientific Cooperation (PICS) deal with financing initiatives between teams that have already established links through joint publications or student training programs.
- International Associated Laboratories (LIA) lay the bases of cooperation around a joint project, mostly between one or several French teams and a main partner abroad. They sometimes foreshadow the creation of an International Joint Unit.



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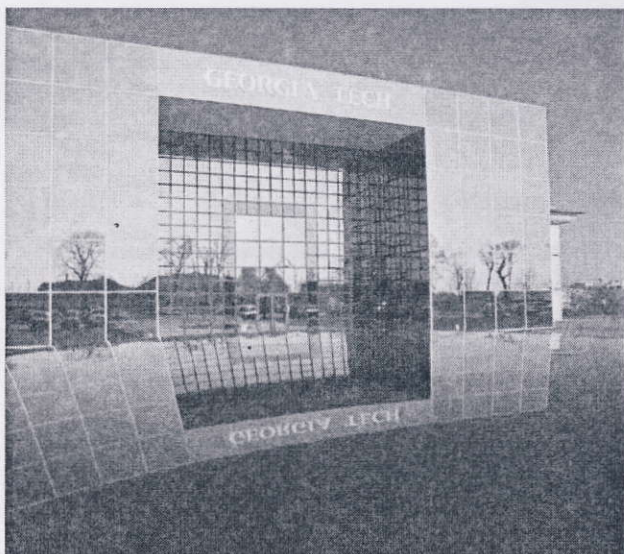
- International Research Networks (GDRI) allow teams from two or more countries to collaborate on a joint scientific project.
- International Joint Units (UMI), which are proper joint laboratories, have the same status as CNRS joint research units (UMR) in France. These UMIs are most often backed by one or several French laboratories, making up a "mirror UMI". Moreover, CNRS is a partner of the French Ministry of Foreign and European Affairs in 26 joint units - French institutes abroad (UMIFRE).

Collaborative projects are organized on the basis of researchers' proposals, which are subjected to a selection process within the CNRS authorities and in liaison with international partners.

## Examples of interdisciplinary and multilateral programs

Coordinated by CNRS, the MISTRALS program (Mediterranean Integrated Studies at Regional And Local Scales) is a ten-year observation and interdisciplinary research project dedicated to understanding the processes at work in the Mediterranean Basin, as well as global change, whether natural or human-induced. Its ultimate goal is to predict the evolution of habitability conditions in this ecoregion and propose appropriate measures to optimize them.

The programs Frontiers of Science (FoS) and Frontiers of Engineering (FoE) aim to promote an interdisciplinary approach when addressing cutting-edge research topics. During symposia, talented young researchers have cross-disciplinary exchanges with fellow scientists from another country involved in order to find new approaches or trends. France participates in two FoS programs, one with Japan, the other with Taiwan. A FoE program is underway with Japan. The Ministry of Foreign Affairs, the Ministry of Higher Education and Research and France's main scientific institutions manage these programs through a consortium coordinated by CNRS.



Lorraine Campus of the Georgia Tech-CNRS international joint unit, a collaboration renewed in 2010.

## CNRS participation in European programs

CNRS is a major player in the development of the European research area and thus an important contributor to the European integration process. As part of the 7<sup>th</sup> Framework Programme for Research and Development (FP7), it participated in the five main research programs of the European Commission, with which it has signed over 1250 contracts. The results obtained by French researchers in the ERC<sup>1</sup> calls for proposals have further strengthened CNRS's position as the organization that is home to the largest number of ERC grantees in Europe. CNRS also took an active part in the International Cooperation projects (INCO<sup>2</sup>) of the FP7 Capacities Programme.

Within the "France - Europe 2020" Strategic Agenda, aimed at helping French research tackle important challenges, and in keeping with the momentum of Horizon 2020, CNRS strives to increase the participation of its research teams to European calls for proposals. In particular, it will encourage its researchers to prepare proposals on strategic scientific topics as coordinators. The organization will also continue to provide information, support its researchers, and incite them to submit proposals.

<sup>1</sup> ERC: European Research Council.

<sup>2</sup> INCO programs: INCONET (political dialogue between the EU and another region in the world), BILAT (helping third countries' researchers participate in FP7), ERA-NET (coordinating national research programs with a third country region), INCO-LAB (opening international laboratories to European partners).

## Key figures

**40** framework agreements for researchers' exchanges with some 30 countries

**293** International Programs for Scientific Cooperation (PICS)

**158** International Associated Laboratories (LIA)

**105** International Research Networks (GDRI)

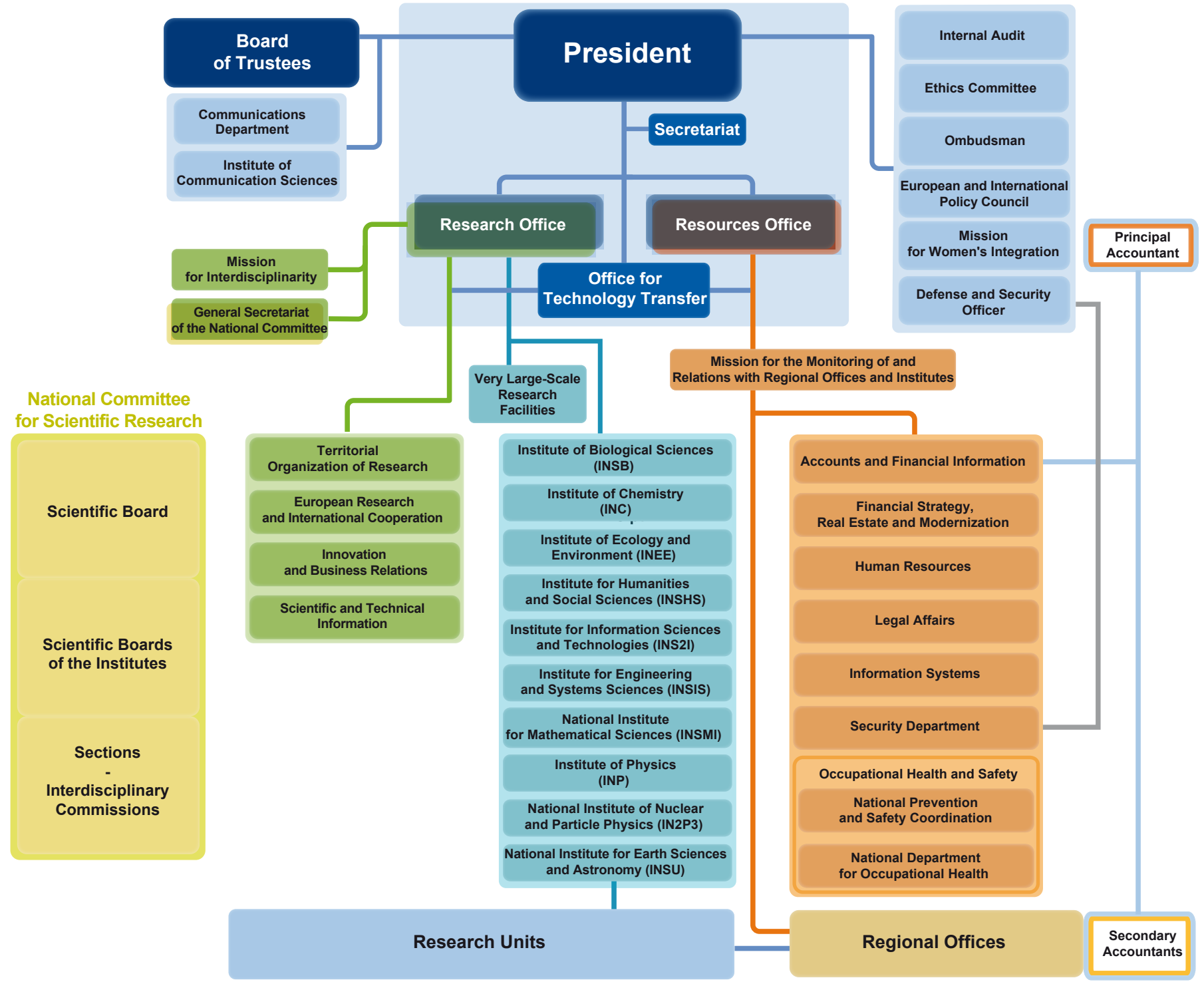
**30** International Joint Units (UMI)

**26** Joint Units - French research institutes abroad (UMIFRE)

**10** CNRS representative offices abroad

Source: DERC 30/11/2013

# CNRS organizational chart



**Board of Trustees**

Communications Department  
Institute of Communication Sciences

**President**

Secretariat

Internal Audit  
Ethics Committee  
Ombudsman  
European and International Policy Council  
Mission for Women's Integration  
Defense and Security Officer

Research Office

Resources Office

Office for Technology Transfer

Mission for Interdisciplinarity  
General Secretariat of the National Committee

Principal Accountant

National Committee for Scientific Research

Scientific Board  
Scientific Boards of the Institutes  
Sections - Interdisciplinary Commissions

Very Large-Scale Research Facilities

Mission for the Monitoring of and Relations with Regional Offices and Institutes

Territorial Organization of Research  
European Research and International Cooperation  
Innovation and Business Relations  
Scientific and Technical Information

Institute of Biological Sciences (INSB)  
Institute of Chemistry (INC)  
Institute of Ecology and Environment (INEE)  
Institute for Humanities and Social Sciences (INSHS)  
Institute for Information Sciences and Technologies (INS2I)  
Institute for Engineering and Systems Sciences (INSIS)  
National Institute for Mathematical Sciences (INSMI)  
Institute of Physics (INP)  
National Institute of Nuclear and Particle Physics (IN2P3)  
National Institute for Earth Sciences and Astronomy (INSU)

Accounts and Financial Information  
Financial Strategy, Real Estate and Modernization  
Human Resources  
Legal Affairs  
Information Systems  
Security Department  
Occupational Health and Safety  
National Prevention and Safety Coordination  
National Department for Occupational Health

Research Units

Regional Offices

Secondary Accountants

## **Delegation from the National Center for Scientific Research (CNRS)**

- Prof. Jean-Yves Marzin, director, Institut for Engineering and System Sciences (INSIS),
- Dr Patrick Nedellec, director for European Research and International Cooperation (DERCI),
- Prof. Philippe Agard, professor National Institute for Earth Sciences and Astronomy (INSU)
- Dr Edouard Michel, international relations, Institut of Ecology and Environnement (INEE),
- Mrs. Chamira Lessigny, deputy director for European Research and International Cooperation (Middle East),
- Mrs. Lucyna Haaso-Bastin, directorate for European Research and International Cooperation (Middle East),

More information is also available on: <http://www.cnrs.fr/en/aboutcnrs/overview.htm>

## Delegation from French universities:

- Prof. Jacques Comby, President of Jean Moulin university, Lyon 3, representative of “Conférence des Présidents d’Université” (association of directors of universities, national polytechnic institutes, écoles normales supérieures, grandes écoles, and research and higher education clusters)
- Prof. Marc Renner, director INSA from de Strasbourg, representative of “Conférence des Grandes Ecoles “(association of engineering schools, management schools and higher education institutions) and “Conférence des Directeurs des Ecoles Françaises d’Ingénieurs” (association of deans of French public and private schools of engineering and universities of technology),
- Prof. Jean-Luc Clément counsellor for research to the director of international relations at ministry of research,
- Dr. Yannick Le Roux Cultural, Academic and Research Directorate, ministry of Foreign Affairs
- Dr. Thierry Valentin, deputy director general of Campus France Agency,
- M. Yoann Le Bonhomme, head of the Middle East Department of Campus France Agency.



**Lucyna HAASO-BASTIN,**

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Lucyna Haaso-Bastin, born in 1979, is a Project Manager at the Europe of Research and International Cooperation Department (DERCI), of the National Center for Scientific Research (CNRS).

Lucyna Haaso-Bastin has a Master's degree in Political Science from the University of Sorbonne Paris 1. She also holds a double diploma in International relations and Management of European projects. Through her academic training, carried out both in Poland and in France, she acquired an in-depth understanding of international relations. Furthermore, she built expertise in complex and dynamic global political arena through her post-graduate research in international security issues also obtained at the University of Sorbonne Paris I.

She has gained experience in international project management during her internships at Polish Embassy in Paris as well as at UNESCO. During the last eight years she has worked as an assistant in an international law firm and as a translator, based in Paris.

She joined the CNRS on January 2016 as the Project Manager for the India, Middle East and Africa sector.





**Chamira LESSIGNY,**

CNRS, Europe of Research and International Cooperation Department, Derci

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Since January 2014, Chamira Lessigny is Deputy Director at the Europe of Research and International Cooperation Department (DERCI), of the Centre National de la Recherche Scientifique (CNRS).

Born in 1979, Chamira Lessigny has a Master's degree in Biology from the University Pierre et Marie Curie Paris VI and post-graduate diploma (DESS) in Scientific Journalism and Communication from the University Denis Diderot Paris VII.

In 2004, she was appointed by the Ministry of Foreign Affairs to serve as deputy scientific attaché in Life Sciences at the scientific section of the French Embassy in Tokyo, Japan.

Chamira Lessigny joined the CNRS in January 2006, as program Manager at the Direction for International Cooperation. She was nominated Deputy Director in 2014, for India and South-East Asia. Since July 2015, she's Deputy Director for India, Africa and Middle East, and implements CNRS international strategy by promoting CNRS bilateral and multilateral cooperation.



**Edouard MICHEL**

CNRS – INEE, Institut Ecologie et Environnement  
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Edouard Michel is in charge of the international and European environmental science strategy at CNRS. With a background in social anthropology, ethnoecology and functional ecology, Edouard conducted cross-cutting missions and fieldworks on traditional knowledge related to the environment, on heritage, biodiversity and ecosystem management, especially in Australia-Pacific and the Mediterranean. He worked for local, national and international organizations including Australian Aboriginal communities, National Parks, UNESCO and UNEP/Barcelona Convention, getting gradually involved into European and international research strategies.

CNRS staff since 2012, Edouard was first appointed as Programme Manager at the CNRS International Office for the Mediterranean (Malta), before joining CNRS directorate for ecology and environmental sciences (CNRS – INEE, Institut Ecologie et Environnement), which manages a hundred research units and networks in France and overseas.



**Jean-Yves MARZIN**

**Director**

Institute for Engineering and Systems Sciences - INSIS

National Center for Scientific Research- CNRS

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**Jean-Yves MARZIN**, born in 1956, is Research Director at CNRS (National Center for Scientific Research)

Since February 2013, he is the Director of the Institute for Engineering and Systems Sciences (INSIS), one of the ten CNRS institutes.

Former student from the *Ecole Polytechnique*, Jean-Yves Marzin graduated as an engineer from the *Ecole Nationale Supérieure des Télécommunications*. He holds a Ph.D. degree in Physics.

For 16 years, he was a research engineer specialized in semiconductors at the *Centre National d'Etudes des Télécommunications* where he led a research group on optical properties of micro-and nanostructures from 1987 to 1996.

In 1996, Jean-Yves MARZIN joined the CNRS as the director of the Laboratory for Microstructures and Microelectronics. In 2001, he set up the Laboratory for Photonics and Nanostructures, which he headed until 2011.

Jean-Yves Marzin taught as Professor at the Department of Physics of the *Ecole polytechnique* from 1994 to 2006.

Jean-Yves MARZIN has assumed different leadership positions in scientific activities and research management:

- 2002-2005: he served as director of the CNRS interdisciplinary research program on “Nanoscience-nanotechnologies” and member of the National Committee for Nanoscience
- 2005-2012: active member or president of different program committees for the National agency for Research on Nanoscience
- 2005-2006: member of the CNRS direction board, in charge of setting up the MIPPU department
- 2007-2013: French representative in the COST Program (European Cooperation in Science and Technology) in the fields of Materials, Physics and Nanoscience.
- 2011-2014: for the CNRS and the University Paris-Sud he was in charge of the “Center for Nanoscience and Nanotechnology” project of the Saclay Plateau Campus.

Jean-Yves MARZIN was awarded the Ancel Prize by the French Physical Society in 1990 and is Chevalier in the Order of Academic Palms.



**Patrick Nédellec**  
**Director,**  
**Europe of Research and International Cooperation Office (DERCI)**  
**DR2 CNRS**

Born in Paris France in 1965, Patrick Nédellec is a PhD graduate from McGill University (Montreal, Canada) and a former Master student at Laval University (Quebec, Canada).

He joined the Pasteur Institute in Paris as a post doctoral fellow in 1996 (Theiler virus research) and started his career as researcher at the National Centre for scientific research (CNRS) at Paris V University in pharmacology. In 1999, Patrick Nédellec moved to Pitié-Salpêtrière Hospital in Paris to perform specific research on human genetics and muscle dystrophy.

In 2003, he was appointed at the Ministry of Foreign Affairs to serve as scientific and university attaché at the French Embassy in Copenhagen. In 2007, he was assigned in China as scientific attaché at the French Embassy in Beijing, in charge of innovation sector covering China Mainland.

In January 2011, he reintegrated CNRS as Director of CNRS representative office in China.

Since September, 2013 he is at the head of the Europe of Research and International Cooperation department (DERCI). This department is composed of 45 persons (26 at CNRS headquarters and 19 located in the 8 CNRS representative offices abroad). Based on international specific indicators, he is in charge of the implementation of CNRS international strategy. He also participates in the elaboration of an international policy for each French university federations.

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## **Philippe Agar**

**Institut des sciences de la Terre de Paris (*Paris Earth Sciences Institute*)**

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**Philippe Agar**, born in 1971, is a professor at Pierre and Marie Curie University (UPMC)

### ***Scientific Expertise:***

Geodynamics, metamorphic petrology, tectonics / Subduction zones, Obduction processes, Regional-scale geodynamic reconstructions, Quantitative petrology and rheology

### ***Training & Professional experience:***

Since 2011 : *Member of Institut Universitaire de France*

Since 2009 : Professor, Pierre and Marie Curie University (UPMC)

1999-2009 : Maître de conférences (Assistant professor), Univ. Paris 6

2007 : Habilitation à diriger des recherches

1994-1998 : PhD thesis "entitled "Evolution métamorphique et structurale des métapelites océaniques dans l'orogène Alpin : l'exemple des Schistes Lustrés (Alpes Cottiennes)"

1996-1997 : Scientific attaché at the french embassy in Hanoi (military service)

1991-1995 : Student of Ecole Normale Supérieure, Paris

Languages : English (fluent), Persian/Italian (spoken), Vietnamese/Spanish/German/Japanese (good level)

### ***Main administration duties:***

- PI of the European ITN-Marie Curie ZIP (Zooming in between plates", 4M€, 2013-2017), of the French ANR Blanche "O:NLAP" (0,4M€; 2011-2014) and of the Int. Lith. Prog. task forces "Subduction Channel Processes" (2011-2015) and Subduction across scales (2016-2020).

- Chief Editor of Tectonophysics, Elsevier, since 2016

- Head of Earth Science undergraduate studies at UPMC since 2011

-Coordinator of the "Terre vivante et environnement" Department (1 of the 4 scientific departments at UPMC), 2012-2015

- Deputy-director of OSU Ecce Terra (1500 p.) since 2011-2015

### ***Five major publications:***

- Agard P., Monié P., Goffé B. & Jolivet L. " In situ laser probe  $^{40}\text{Ar}/^{39}\text{Ar}$  constraints on the exhumation of the Schistes Lustrés unit : geodynamic implications for the evolution of the Western Alps", 2002. *Journal of metamorphic geology*, 20, 599-618.
- Agard P., Omrani J., Jolivet L & Mouthereau F. Convergence history across Zagros (Iran): constraints from collisional and earlier deformation. *International Journal of Earth Sciences*, 94, 401-419, doi 10.1007/s00531-005-0481-4
- Agard P., Jolivet L., Vrielynck B., Burov E. & Monié P., 2007, Plate acceleration : the obduction trigger? *Earth and Planetary Science Letters*, 258, 428-441.
- Agard P., Yamato P., Jolivet L., Burov E., Exhumation of oceanic blueschists and eclogites in subduction zones: timing and mechanisms, *Earth Science Reviews*, 92, 53-79, doi: 10.1016/j.earscirev.2008.11.002
- Angiboust S., Agard P., Yamato P., Raimbourg H., Huet, B., 2012. Eclogite breccias in a subducted ophiolite: a record of intermediate-depth earthquakes? *Geology*, doi 10.1130/G32925