THE CNRS IN BRAZIL 2016
WHAT IS THE CNRS?

The Centre National de la Recherche Scientifique (National Centre for Scientific Research) is a public body under the authority of the French Ministry of Education and Research.

Founded in 1939, the CNRS is the largest fundamental research organization in Europe. It carries out research in all fields of knowledge through ten specialized Institutes.

CNRS INTERNATIONAL RESEARCH COOPERATION TOOLS

**UMI**

*International Joint Units* are proper joint laboratories set up in collaboration with a foreign or an industrial partner. They have the same status as CNRS joint research units (UMR) in France.

**UMIFRE**

The CNRS is also a partner of the French Ministry of Foreign Affairs in 26 joint units called *French research institute abroad*.

**LIA**

*International Associated laboratories* are virtual laboratories that lay the bases of cooperation around a joint scientific project between one and three French teams and one and three teams abroad.

**GDRI**

*International Research Networks* bring together several laboratories from two or more countries to coordinate research on a specific topic.

**PICS & PRC**

*International Programs for Scientific Cooperation (PICS) & Joint Research Projects (PRC)* finance mobility between teams that have already collaborated on joint publications or student training programs.

Cover photo: Várzeas do Rio Negro © Hervé THERY/CNRS Photothèque
Located in the French Consulate building in Rio, the CNRS office in Rio de Janeiro started its activities on January 1st 2010. The presence of an office in Brasil expresses the will of the CNRS to strengthen its partnership with this country.

Since 2016, the CNRS Office is also in charge of the South Cone of Latin America (Argentina, Chile and Uruguay).

The main objectives of the CNRS office in Brazil are:

- **Strengthening** the CNRS partnerships with Brazilian institutional partners
- **Developing** the best partnership by assisting the creation of structuring collaborations (UMI, LIA, GDRI)
- **Initiating** new collaborations through thorough knowledge of the Brazilian scientific ecosystem

*Image: Casa Europa, CNRS Office in Brazil*
Since 1975, the **Conselho Nacional de Desenvolvimento Científico e Tecnológico** (CNPq) and the CNRS are linked by a framework agreement aiming at strengthening their cooperation in the field of scientific, technological research and innovation. The two organizations have renewed their partnership in 2007 and in 2015.

The cooperation between the CNRS and Brazil is based on a strong partnership with the **Research Foundation of the State of São Paulo** (FAPESP), which signed its first framework agreement with the CNRS in 2004.

**FAPESP** supports the Brazilian research teams taking part in exchange and cooperation programs and joint research projects (PRC).
IMPA, the Instituto Nacional de Matemática Pura e Aplicada, is a research institute and graduate school, within the Brazilian Ministry for Science, Technology and Innovation (MCTI). The UMI, created in collaboration with IMPA, is settled in Rio de Janeiro. Its main objective is to offer a platform to the Mathematicians of both countries, which will allow them to collaborate on projects within the fields of:

- Algebra,
- Analysis / PDE,
- Graph computing,
- Fluid Dynamics,
- Holomorphic Dynamics,
- Differential Geometry,
- Mathematical Economics,
- Optimization,
- Probability,
- Dynamic systems,
- Ergodic theory.

Artur Avila, Fields medalist in 2014

CNRS Senior researcher at the Institut de Mathématiques de Jussieu-Paris Rive Gauche (CNRS/Université Paris Diderot/Université Pierre et Marie Curie).

Pesquisador extraordinário (Cátedra Armínio Fraga) at IMPA - Instituto Nacional de Matemática Pura e Aplicada
### Biological Sciences

**Assembly and structure of macromolecular complexes involved in bacterial cell wall biosynthesis and regulation (BACWALL)**
- Centro Nacional de Pesquisa em Energia e Materiais
- CNRS, Université Grenoble Alpes, CEA

**Lung Inflammation**
- Universidade de São Paulo
- CNRS, Centre-Val de Loire Université

**Studies of alterations in gene expression in the child’s neoplasia (NEOGENEX)**
- Associação Hospitalar de Proteção à Infância Dr. Raul Carneiro
- CNRS, Université de Nice

**Global change and food security: towards climate resilient crops (PALMHEAT)**
- Universidade Federal do Pará
- CNRS

### Chemistry

**Institute of Physicochemical Research and Analysis (IPAF)**
- Universidade Estadual de Santa Cruz
- CNRS, Université de Lyon

### Information Science & Technology

**International Laboratory of Intensive Computing and Environmental Informatics (LICIA)**
- Universidade Federal do Rio Grande do Sul
- CNRS, Université Grenoble Alpes, Inria
### Ecology & Environment

#### International Laboratory Research in Bioinformatics (LIRIO)
- Laboratório Nacional de Computação Científica
- CNRS, Inria, Université de Lyon

#### Patterns of sponge biodiversity and chemodiversity from la Martinique to Rio de Janeiro (MARRIO)
- Universidade Federal do Rio de Janeiro, Universidade do Estado do Rio de Janeiro
- CNRS, Aix-Marseille Université, IRD, Université d'Avignon, Université de Nice

### Engineering

#### James Clerk Maxwell
- Universidade Federal de Santa Catarina, Universidade Federal de Minas Gerais, Universidade de São Paulo
- CNRS, Université de Lyon, Université Grenoble Alpes

#### Human Tissue Laboratory (HuTIL)
- Instituto Nacional de Metrologia, Universidade Federal do Rio de Janeiro
- CNRS, Université de Lyon
### Energy and Environment

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<th>Brazil</th>
<th>CNRS, Université Paris-Saclay, Lille Nord de France</th>
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<td>CNRS, Universidade de São Paulo</td>
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<td>France</td>
<td>CNRS, Sorbonne Universités, MAEDI</td>
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### Physics

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<td>CNRS, Universidade Federal do Rio de Janeiro</td>
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### 5 INTERNATIONAL RESEARCH NETWORKS (GDRI)

#### Humanities

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<tr>
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<td>France</td>
<td>CNRS, École nationale supérieure d'Architecture de Nantes, École nationale supérieure d'Architecture de Grenoble</td>
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#### Mathematics

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<td>Brazil</td>
<td>Sociedade Brasileira de Neurociências e Comportamento</td>
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8 INTERNATIONAL PROGRAMS FOR SCIENTIFIC COOPERATION (PICS)

**Physics**

**Quantum thermodynamics, quantum optics**
- Universidade Federal do Mato Grosso
- CNRS

**Measuring the Casimir Force with Optical Tweezers**
- Universidade Federal do Rio de Janeiro
- CNRS, Paris Sciences et Lettres

**Humanities**

**Heritage-Images-Media-Identities**
- Universidade Federal da Bahia
- CNRS, Université de Lyon, Université Grenoble Alpes
Metropolitan Transition and Centrality in Brazilian Cities in the first half of the 20th century

Universidade de São Paulo
CNRS, Université Sorbonne Paris Cité, Université Nice-Sophia-Antipolis, IRD

Nuclear & particle physics

Universality and relativity in strong interacting systems

Instituto Tecnologico de Aeronautica
CNRS, Université Paris-Saclay

Information Science & Technology

Nonlinear online system identification with kernels. Applications to the analysis of hyperspectral images

Universidade Federal de Santa Catarina
CNRS, Université Nice-Sophia-Antipolis, Observatoire de la Côte d’Azur

Chemistry

Photo-Induced Oxidation of Lipid-Membranes

Universidade de São Paulo
CNRS

Engineering

Ductile fracture models for general states of stress and associated numerical issues

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Details of the labs are given in the preceding pages

More details on [www.cnrs-brasil.org](http://www.cnrs-brasil.org)