

# Picasso

hyPerbolIC models, numerical Analysis, Scientific cOmputation

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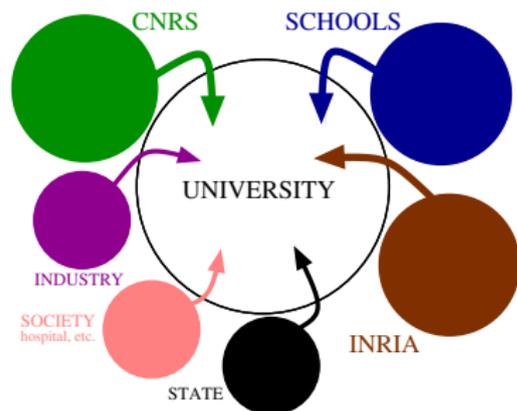
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# French academics — An intricate system

## Mathematics and applied mathematics

A French mathemat. laboratory is a reunion of researchers paid by several different entities.



### Universities

- Since ~1229
- Local to a major city
- Mathematics laboratory

### CNRS

- Created ~1939
- National Center of Scientific Research
- Employees sent to Univ. Math. Lab

### Engineering schools

- Started ~1571
- Ultra local
- Employees (often) associated to a Univ. Math. Lab.

### Inria

- Created ~1979
- National Research Computer Science
- Employees assoc. to Univ. Math. Lab

CNRS has a mission of **structuring** scientific research, **develop links** at national and international levels, **support** national actions (AI, TGV, ITER, Covid, Olympic Games 24, etc.).

# CNRS National level - Instruments for Internat. Collab.

## Explore

### IRP – International Research Projects

Duration: 2-5 years  
French and foreign laboratories collaborating on **joint research projects**

No staff

Budget: 5k€-15k€/year

Strengthening medium/long-term scientific collaboration

Bottom-up approach

PICASSO is an IRP

## Structure

### IRL – International Research Laboratories

Duration: 5 years  
**Joint research lab.** located abroad with a **director and deputy-dir.** Possibility of staff secondments

Budget: 5k€-30k€/year

Dev. of actions and establishment of a localized international presence

Laboratory-driven approach

Specific PhD scholarships

## Integrate

### IRC – International Research Centres

Located abroad, structuring and **interdisciplinary** centres  
Examples: London, Tokyo, Witswatersrand, Arizona, Chicago, São Paulo, etc.  
Budget: missions, meetings

Joint institutional steering of a centre with a partner institution

Institutional approach

Specific PhD scholarships

# CNRS Initiative – International Research Project (IRP)

France, Portugal, Spain

→2024 **Solid scientific relationships** between researchers in the field of modeling, numerical analysis and scientific computation. Enhance within an official administrative structure?

**GOALS** *Structuring an internat. scientific community around common themes. Promoting the organis. of internat. workshops/seminars/thematic schools, mobility between the partners.*

2025→ **IRP Picasso** for 5 years from January the 1st, 2025. Annual funds from CNRS.

2030? Renewal/evolution. → International Research Laboratory?



hyPerbolic models, numerical Analysis, Scientific cOMputation

- **Axis 1 Hyperbolic systems of PDEs**
- **Axis 2 Modeling and simulation of geophysical flows**
- **Axis 3 High performance computing and verification**

Any researcher in applied mathematics (broad sense) from those 3 countries can participate.

Web : <https://picasso.math.cnrs.fr/>



CNRS International Research Project (IRP) PICASSO

## PICASSO

INTERNATIONAL RESEARCH PROJECT FROM CNRS MATHEMATIQUES

PICASSO is intended to enhance the network between Spanish, Portuguese and French applied mathematicians involved in "hyPerbolic models, numerical Analysis and scientific cOMputation"

Constituted of about 200 researchers spread in these countries, IRP Picasso supports any action which creates or fosters our scientific relationships via its own funding.

LEARN MORE



# IRP Picasso

France, Portugal, Spain

## Three "Hubs" and a direction council

Country	City	Laboratory	In charge
Spain	Málaga	Differential Equations Numerical Analysis and Applications (EDANYA)	<b>Tomás Morales de Luna</b> uma.es/edanya
Portugal	Coimbra	Centro de Matemática (CMUC)	<b>Stéphane Clain</b> cmuc.mat.uc.pt
France	Bordeaux	Institut de Mathématiques de Bordeaux (IMB)	<b>Raphaël Loubère</b> math.u-bordeaux.fr

## Satelite laboratories and council

**E. D.Fernández-Nieto** (Sevilla), **P. Mulet** (Valencia), **C. Berthon** (Nantes), **C. Chalons** (Versailles), **G. Machado** (Minho) et **D. Albuquerque** (NOVA Lisbon).

## How many researchers are we talking about?

Our list of participants\* gathers 155 researchers, possibly with a lot of missing ones from our countries.

participants\* = researcher who has accepted to receive the Picasso newsletter.



# 2nd workshop in Coimbra – 9-11 Nov. 2026



## In Coimbra, Portugal

Amphi-teatro Pedro Nunes, Departamento de Matemática da Universidade de Coimbra

Web: [indico.math.cnrs.fr/e/2nd\\_Picasso\\_Workshop](http://indico.math.cnrs.fr/e/2nd_Picasso_Workshop)

**Local organization:** S. Clain

**Expected:** ~70 on-site participants, ~40 présentations, 5 plenary, 1 poster session. Last year grant winners will present.

No registration fee, banquet and coffee-pause offered. **On-going call for abstract**



## Action 2: "Scientific exchange for one week"

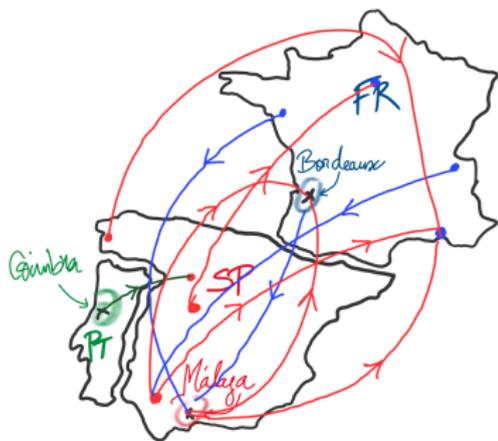
### Super light call – 1 PDF page

1st in April 2025 (7 missions), 2nd in Sept. 2025 (5)

- min 4-5 days, different country, working visit
- maximum ~ 1500€/ mission
- Provide one paragraph+illustration, cite Picasso + presentation at next workshop

From **Málaga**, **Seville**, **Santiago**, **C. La Mancha**,  
**Bordeaux**, **Nantes**, **Chambéry**, **Coimbra**

To **Málaga**, **Seville**, **Valladolid**, **Bordeaux**, **Marseille**,  
**Paris 13**, **Coimbra**



~90% of Picasso grant spent on this call in 2025

**Selection process:** balance btw countries and laboratories, help young researchers in priority

**Administrative work:** Inst. de Mathématiques de Bordeaux.

### On-going call in 2026

4/5 days mission are beyond a "come to us and give a seminar".

Celebrated for the simplicity of the application: 1 PDF page at [picasso@math.u-bordeaux.fr](mailto:picasso@math.u-bordeaux.fr)

# Prospects: development of even stronger scientific links

**New!** Encourage long visits of PhD students (2nd and 3rd year)

Common scientific project: 1 to 3 months abroad away from the PhD student's confort zone.

*Advantages:* test future postdocs, reinforced relationship, efficient work and good feed-back

*Drawbacks:* need €€€, partner's commitment ← use funds from Univ., Eur., embassies beyond Picasso grant

**New!** Apply to European calls with IRP Picasso's endorsement

Create strong enough networks to capture some large European fundings.

Annual days of IRP Picasso in Portugal 2026

Universidade de Coimbra 9-11  
November 26

Communic./visit Nov.25 and Feb.26

Spain: **Sevilla, Granada, Valencia, Malaga.**

Portugal: **Coimbra, (NOVA) Lisbon, Minho, Porto.**

France: **Marseille, Toulouse, Paris.**

**Example:** EDF (R&D, Paris Saclay) et **EDANYA Málaga** → 24-26/11/25 in Málaga .

First interactions on Finite Volume well-balanced schemes, low Mach, PhD V. Paré (EDF R&D + Inst. Math. Bordeaux).

Industrial context: hypothetic "Loss-Of-Coolant Accident" in nuclear power plants. Shared PhDs to come?

# Future ? International Research Laboratory

14 "CNRS Mathematics" IRL in 2025 – 0 on the Iberian Peninsula



- 2000 – LaSol – Mexico [www.lasol-mexico.org](http://www.lasol-mexico.org)
- 2000 – CMM – Santiago del Chile [www.cmm.uchile.cl](http://www.cmm.uchile.cl)
- 2004 – ICP – Vienna [www.icp.cnrs.fr](http://www.icp.cnrs.fr)
- 2005 – Jean-Christophe Yoccoz – Rio de Janeiro [impa.br](http://impa.br)
- 2007 – CNRS-PIMS – Vancouver [www.pims.math.ca](http://www.pims.math.ca)
- 2012 – CRM-CNRS – Montréal [www.crm.umontreal.ca](http://www.crm.umontreal.ca)
- 2018 – Abraham de Moivre – Londres [abrahamdemoivre.org](http://abrahamdemoivre.org)
- 2021 – LYSM – Roma [www.lysm.cnrs.fr](http://www.lysm.cnrs.fr)
- 2023 – FVMA – Hanoi [www.fvma.math.cnrs.fr](http://www.fvma.math.cnrs.fr)
- 2023 – FJLMI – Tokyo [www.fjlmi.cnrs.fr](http://www.fjlmi.cnrs.fr)
- 2024 – IFUMI – Montevideo [www.ifumi.cnrs.fr](http://www.ifumi.cnrs.fr)
- 2025 – FAMSI – Canberra [famsi.org.au](http://famsi.org.au)

Many thanks to "CNRS Mathématiques", the French labs (Nantes, Versailles, Bordeaux, etc.), the administrative team from IMB (Bordeaux), Spanish and Portuguese laboratories involved, and the participants.

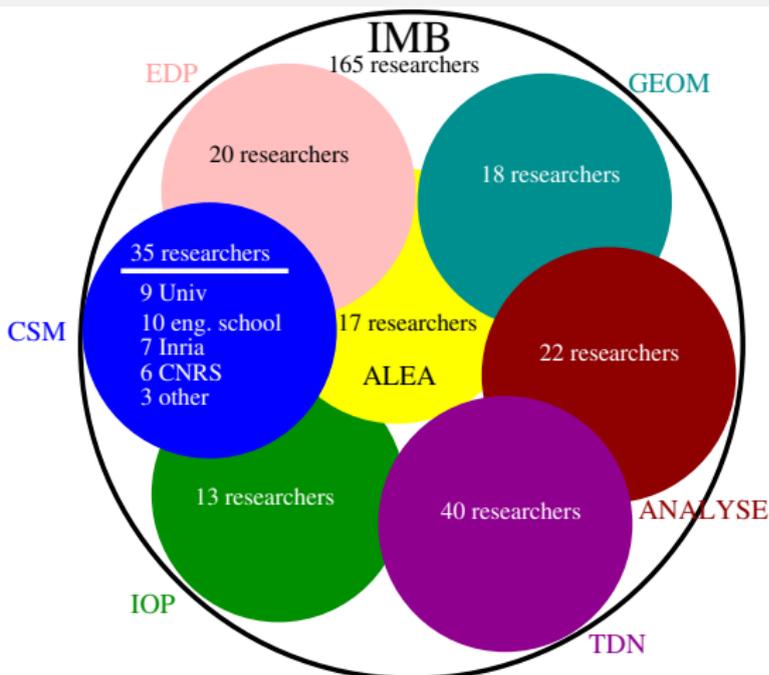
Thank you for your time, attention and organizing this visit. Questions?



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# French academics – An intricate system

Example of team CSM within the Mathematics Institute of Bordeaux (IMB)



**Bordeaux University.** 6000 researchers, 52,000 students, 50 disciplinary fields.

○ 11 Departments: **Sciences, Engineering and Numerics**

○ 5 Institutes/Laboratories: **Math. Institute of Bordeaux** (IMB 165 researchers)

○ 7 Teams:

**Modeling and Scientific Computing** (CSM 35 researchers)

35 researchers = 9 UB + 10 INP + 7 Inria + 6 CNRS + 1 CEA + 1 ONERA + 1 Hosp.  
~ 35 PhD/postdocs/non-permanents.

INP = engineering school

Inria = Computer science

ONERA = French space agency

CEA = Atomic Energy Commission

I am a CNRS researcher, paid by CNRS but deployed at the Math. Institute of Bordeaux since 2016, previously deployed at the Math. Institute of Toulouse. I could be deployed elsewhere in France or in an International Research Laboratory