



**ARCUS 2007**  
**GENERAL PRÉSENTATION**  
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**RHÔNE-ALPES / BRÉSIL**

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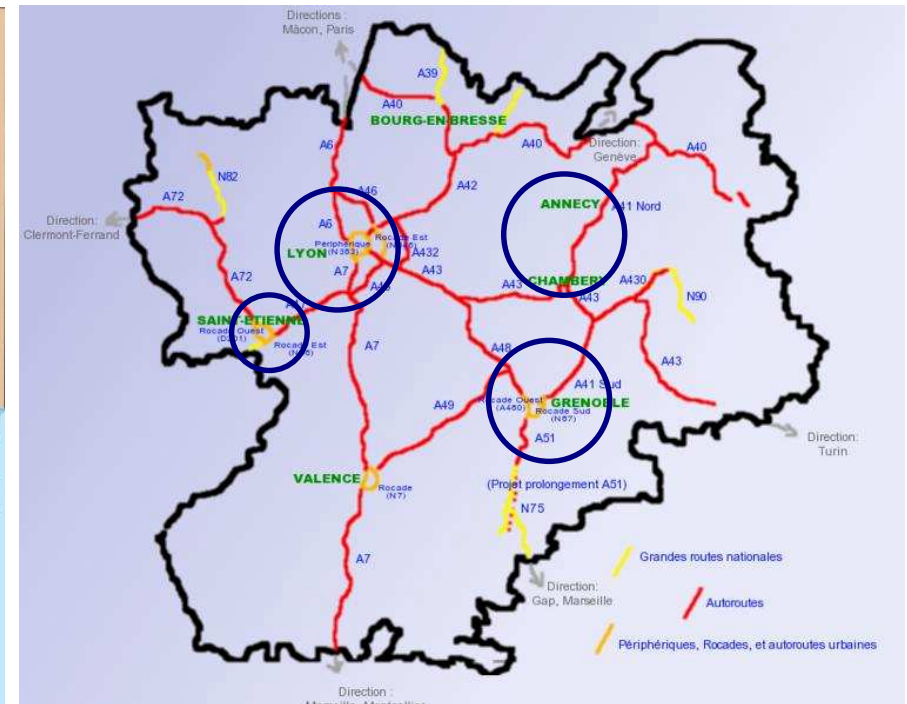
**Project from:**

- Institut National des Sciences Appliquées de Lyon (INSA)
- Ecole Normale Supérieure de Lyon (ENS)
- Ecole Centrale de Lyon (ECL)
- Université Claude Bernard Lyon 1 (UCBL)
- Université Joseph Fourier Grenoble 1 (UJF)
- Université Louis Lumière Lyon 2
- Université Pierre Mendès France Grenoble 2 (UPMF)
- CNRS Alpes
- CNRS Rhône/Auvergne

ARCUS-Brazil  
Parana's delegation, 15-19 January 2007



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## Main features of the "new" ARCUS Rhône-Alpes / Brazil

Aim: to reinforce **existing collaborations** / to allow **new** collaborations

☞ Funds are focused on the organization of "schools", meetings and workshops

☞ It is built on 3 main subprojects:

Subproject 1 : Mathematics

Subproject 2 : Science and Engineering

Subproject 3 : Human and Social Sciences


☞ The project is still opened to new topics, within these 3 subprojects



# Subproject "Mathematics"

## key points, I



- Long tradition of collaboration Brazil – France in the field of Mathematics and their applications. This yield a bi-lateral program "[Cooperation France-Brazil in Mathematics](#)" signed in 2001 and renewed in 2006.
- Excellence networks in Brazil ([Instituto do Milênio Avanço Global e Integrado da Matemática Brasileira](#), <http://milenioimpa.br/>) in which **UFPR** is involved and Grenoble associated) and in France (including mathematics laboratories in Rhône-Alpes). 
- Focused on advanced training activities (PhD and post-doctoral levels) for which both countries already have operational structures, in particular :
  - [Colóquio Brasileiro de matemática](#) - IMPA (Rio de Janeiro)
  - [European school of mathematics](#) - Institut Fourier (Grenoble)



# Subproject "Mathematics"

## key points, II



- Exchange of advanced students and researchers in the frame work of existing or ARCUS specific scientific programs:
  - Scientific activities (advanced schools, post-doctoral curricula, conferences and workshops) organized by the laboratories from both countries).
  - Organization of a Franco–Brazilian ARCUS workshop in 2010 "Computer graphics – Differential geometry – Partial differential equations – Applications".
- Long term vision:
  - Regular exchange of researchers and advanced students,
  - Regular exchange of students (PhD, master),
  - Training of students and joint / curricula or diploma



# Subproject "Mathematics"

## key points, III



### Topics

Universités de Grenoble, Lyon, Chambéry and Saint Étienne  
IMPA, PUC-RIO, UFRJ, UFF, UNICAMP, **UFPR**

- Algebraic geometry and analytic geometry / *Geometria algébrica e geometria analítica*.
- Computer graphics / *Modelagem geométrica*.
- Differential geometry / *Geometria diferencial*.
- Fluid dynamics / *Dinâmica dos fluidos*.
- Probability and mathematical physics / *Probabilidade e física matemática*.
- Dynamical systems and differential topology / *Sistemas dinâmicos e topologia diferencial*.



# Subproject "Science and Engineering" key points, I



- Long tradition of collaboration Brazil – France in the field of Sciences and Engineering,
- Excellence universities in Brazil / Excellence universities in Rhône-Alpes
- Focused on advanced training activities (PhD and post-doctoral levels) for which both countries should build operational structures, complementary of existing others:
  - Programas CAPES / COFECUB
  - Colégio doutoral Franco-brasileiro



# Subproject "Science and Engineering"

## key points, II



- Exchange of advanced students and researchers in the frame work of existing or ARCUS specific scientific programs:
  - Scientific activities (**advanced schools**, conferences and workshops, etc.) organized by the universities from both countries in partnership with industrial partners).
  - Organization of a Franco–Brazilian ARCUS workshop in 2010 on the main topics shared within the ARCUS project
  - *Special parallel session of the future francophone symposium "Matériaux 2010" which should held in Lyon ?*
- Long term vision:
  - Regular exchange of researchers and advanced students,
  - Regular exchange of students (PhD, master),
  - Training of students and joint / curricula or diploma
  - Regular work with economical actors

# ■ ■ Subproject "Science and Engineering"

## key points, III

### Topics

- **Fluids, thermal exchanges, energy**  
(**PUCPR**, UF Santa Catarina, UF Rio; INSA, UCB)
- **Nanosciences et Nanotechnologies**  
(**UFPR**, UF Rio, UF São Paulo, UF São Carlos; UJF, UCB, INSA)
- **Engineering and Health:**
  - **Dispersion of Air Pollutants** (U Brasília; ECL)
- **Materials and Design:**
  - **Organic Nanocomposites** (UF São Paulo, **UFPR ?**; INSA, UCB, UJF)
  - **Hybrid nanoparticles for medical applications** (U Brasília; INSA, UCB)
- **Physics and Large facilities equipments**  
(LNLS, UF Campinas, **UFPR**; Hercules, ESRF, CEA, UJF, UCB, CNRS)

# ■ ■ Subproject "Human and Social Sciences"

## key points, I

- Long tradition of collaboration Brazil – France in the field of Human and Social Sciences, since the co-founding of the Universidade de São Paulo by French great scientists (Lévi-Strauss, Braudel, etc...).
- Excellence universities in Brazil with a strong tradition of social action (“extensão”) / Excellence universities in Rhône-Alpes, leaders in the HSS teaching and researching fields (Collegium de Lyon, several “MSH”, Erasmus Mundus Masters, UNESCO’s chairs, International doctorate schools...).
- Focused on advanced training activities (PhD and post-doctoral levels) for which both countries should build operational structures, complementary of existing others :
  - Programas CAPES / COFECUB
  - Colégio doutoral Franco-brasileiro

ARCUS-Brazil

Parana's delegation, 15-19 January 2007

# ■ ■ Subproject "Human and Social Sciences"

## key points, II

- Exchange of advanced students and researchers in the frame work of existing or ARCUS specific scientific programs:
  - Scientific activities (**advanced schools**, conferences and workshops) organized by the universities from both countries in partnership with social and economical sectors).
  - Organization of a Franco–Brazilian ARCUS workshop in 2010 "Territorial forms of collective organizations and innovations : between local and global models".
- Long term vision:
  - Regular exchange of researchers and advanced students,
  - Regular exchange of students (PhD, master),
  - Training of students and joint / curricula or diploma.
  - Regular work with social and economical actors

# ■ ■ Subproject "Human and Social Sciences"

## key points, III

### Topics

Universités de Grenoble, Lyon and Saint Étienne

UFCE, UFPE, UFBA, UFRJ, UFF, UFRGS, USP, UFPR, Estaduais do Paraná

- Territorial innovation centers / *Pólos de inovação territorial (com ênfase em economia, gestão, direito, geografia e sociologia).*
- Territorial forms of collective organizations / *Formas territoriais de organização coletiva (com ênfase em antropologia, pedagogia, comunicação, sociologia, direito social, lingüística e política).*
- An interdisciplinary approach / A permanent link with social and economical actors / A search for scientific knowledge and tools for concrete changes and developments.

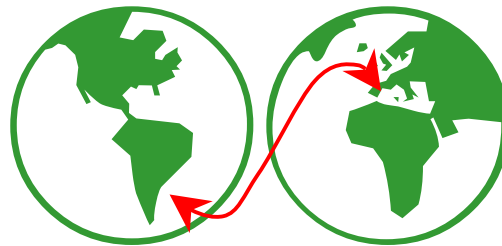


# ARCUS Brazil 2007: General Outlook



- Exchange of advanced students and researchers in the frame work of existing or ARCUS specific scientific programs:
  - Scientific activities (**advanced schools**, conferences and workshops) organized by the laboratories from both countries).
  - **Organization of Franco–Brazilian ARCUS workshops** in 2010
- **Reinforcement of existing and/ or New collaborations from these "melting pots"**
- **Tools for getting funds for supporting postdoc positions, PhD scholarships, etc.**
- Long term vision:
  - Regular exchange of researchers and advanced students,
  - Regular exchange of students (PhD, master),
  - Training of students and joint / curricula or diploma
  - Regular work with social, economical, industrial actors

Obrigado pela vossa atenção



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