

Application Form

First Name	Family Name
Affiliation	
Address	
Zip code	City
Country	
Phone	Fax
E-mail	

Payment

- By check to "SMAI CEMRACS"
- By bank transfer
- By order form (French institutions only)

Request for financial support (young researchers only)

- Yes
- No

Date _____ Signature _____

Please return this form filled to

*Prof. Emmanuel Grenier
Cemracs '09 Organizing Committee
UMPA
ENS de Lyon
46, allée d'Italie
F-69364 Lyon Cedex 07
France*

General Information

Fees for housing and meals - CEMRACS' day package

- Single room (1 night, 3 meals): 90 EUR per day.
- Double room (1 night, 3 meals): 81 EUR per day.

Summer School Registration Fees:

- Full rate: 550 EUR,
- Academic rate*: 220 EUR.
- Junior rate*: 110 EUR.
- Participants to the full Research Center (5 weeks): free.

* : 20 % reduction for SMAI members

Research Center Registration Fees:

- Full rate: 330 EUR.
- Academic rate*: 110 EUR.
- Junior rate*: 55 EUR.

* : 20 % reduction for SMAI members

Application Process (according to availability): to apply to Cemracs '09, please use rather the on-line application form available at the following address:

<http://smai.emath.fr/cemracs/cemracs09/>

Otherwise, use the included application form and send it to the aforementioned address.

Payments –only in Euros– for the registration fees should be made by sending a check or an order form to SMAI CEMRACS, or by bank transfer to:

SMAI - Cemracs '09,
Institut H. Poincaré
11, rue Pierre et Marie Curie
F-75231 Paris Cedex 05, France
RIB (France):
30004-00042-00010009617-27
BNP Paribas Paris Jussieu
International bank account no.:
FR76-3000-4000-4200-0100-0961-727

A copy of the bank transfer should be enclosed with the registration form.

Payments for the housing fees will be directly made during Cemracs '09.

Please note that

- it is possible to only attend the Summer School,
- young researchers attending the Research Session must also attend the Summer School.

CEMRACS'09

Centre d'Été de Mathématiques et de Recherche
Avancée en Calcul Scientifique

Mathematical Modelling
in Medicine

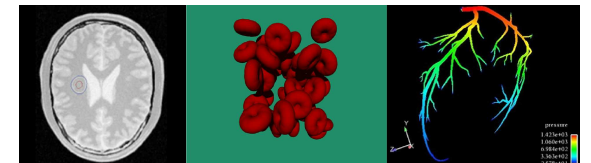
CIRM, Marseille, France

July 20 - August 28, 2009

<http://smai.emath.fr/cemracs/cemracs09/>

Lectures (July 20 - July 24)

Georges-Henri Cottet (Université de Grenoble)
Dirk Drasdo (INRIA, Paris Rocquencourt)
Marc Lavielle (Université Paris-Sud, Orsay)
Nikos Paragios (Ecole Centrale, Paris)



Research Session (July 27 - August 28)

- Main Supports: CNRS, INRIA, SMAI.
- Junior Researchers Grants available.

Contacts: Didier Bresch (CNRS, Chambéry),
Emmanuel Grenier (ENS de Lyon)
cemracs@smai.emath.fr



INSTITUT NATIONAL
DE RECHERCHE
EN INFORMATIQUE
ET EN AUTOMATIQUE



Presentation

The Summer Mathematical Research Center on Scientific Computing and its Applications (Cemracs) will host its fourteenth international session in post graduate courses and research in applied mathematics and scientific computing from July 20 to August 28, 2009.

This research center is primarily aimed at promoting newest achievements in applied mathematics and scientific computing while stimulating interdisciplinary interactions. The goal is to lead the research effort of scientists coming from various fields and involved either in academic research or in technology development in order to perform significant achievements in the derivation and/or the validation of original numerical techniques within the frame of applied problems of vivid interest.

Scientific Objectives

Cemracs '09 is the opportunity to gather people from the mathematical, biophysical and medical communities to address some of the challenges in scientific computing raised by modelling issues in medicine. We aim at developing high performance numerical tools to simulate problems coming from the modelling of stroke, tumor evolution, arterial blood flow and air flow in lungs, atherosclerosis, formation of bone tissue, prion dynamics, etc

Besides numerical simulations, various modelling approaches will be followed, ranging from biomedical imaging to mechanical aspects of tissues. Particular prominence will be given to projects coupling mathematical descriptions to medical and/or biophysical data. To prepare the research session, the summer school will focus on mathematical tools that can be used for modelling cancer and other diseases: challenging statistical methods for parameter estimations in Pharmacokinetics-Pharmacodynamics, image analysis, agent-based models.

Partnership

Cemracs is a SMAI (French Society of Applied and Industrial Mathematics) scientific event.

<http://smai.emath.fr/>

Cemracs General Structure

Cemracs '09 will consist in two joint events:

- a summer school on mathematical modelling and numerical simulation in medicine (July 20 - July 24),
- an intensive five weeks long research session (July 27 - August 28). A one-hour talk will be given each day in the conference room. The remaining part of the day will be devoted to the research activity inside each project team.

Summer School (July 20 - July 24, 2009)

Lectures will be given by confirmed speakers:

- **Georges-Henri Cottet** (LJK - Université de Grenoble)
Level-Set methods and applications in image processing and fluid-structure interaction.
- **Dirk Drasdo** (INRIA, Paris Rocquencourt)
Towards a systems biology approach to tumour growth and tissue regeneration: from experimental data to quantitative models.
- **Marc Lavielle** (Université Paris-Sud, Orsay)
Mixed-effect models in pharmacokinetics and pharmacodynamics.
- **Nikos Paragios** (Ecole Centrale, Paris)
Organ Modeling through Biomedical Imaging: Challenges and Perspectives.

Research Session (July 27 - August 28, 2009)

Every participant will work in a team on a project proposed by an industrial or an academic partner. Each team is composed of two young researchers assisted by one or more senior researchers. The commitment for the young researchers is to be present for the whole period of Cemracs.

The commitment for the senior researchers is to ensure the management of the project, including precise definition of the subject and supervision. Other visiting scientists, interested in the ongoing research, can be associated to the program for shorter periods.

The projects are posted on the Cemracs '09 website:

<http://smai.emath.fr/cemracs/cemracs09/>.

Financial Support

Junior researchers coming for the whole period to work on a project should apply for a financial support covering the local expenses. In any case, junior researchers are invited to send a CV and a letter detailing their scientific experience and their motivations to the Organizing Committee.

Cemracs '09 Organizing Committee

- D. Bresch (CNRS, Univ. Savoie)
- V. Calvez (ENS Lyon)
- M.-A. Dronne (Univ. Lyon 1)
- E. Grenier (ENS Lyon)
- T. Dumont (Univ. Lyon 1)
- V. Louvet (Univ. Lyon 1)
- P. Vigneaux (ENS Lyon)

Scientific Committee

- P. Lascaux (CEA)
- P. Le Tallec (École Polytechnique)
- P.-L. Lions (Collège de France)
- Y. Maday (Univ. Paris-VI)
- É. Pardoux (Univ. Aix-Marseille-I)
- O. Pironneau (Univ. Paris-VI & Acad. des Sciences)
- P.-A. Raviart (CNRS)
- D. Talay (SMAI & INRIA)

Venue

Cemracs '09 takes place at the International Center for Mathematical Meetings (CIRM), located in the Luminy area of Marseille, France. All the facilities of the CIRM center are available for the participants 24 hours a day, 7 days a week, including its computer rooms, its library and wireless connections.

For further information about CIRM, please visit

<http://www.cirm.univ-mrs.fr/>.

