Presentation

The Summer Mathematical Research Center on Scientific Computing and its Applications (CEMRACS) will host its eleventh international session in post graduate courses and research in applied mathematics and scientific computing from July 24 to September 1, 2006.

This research center is primilary 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 or original numerical solvers within the frame of applied problems of vivid interest.

Scientific objectives

The eleventh session of CEMRACS is directly related to an increasing recent interest in studying uncertainty quantification in numerical simulations to assess modeling uncertainty. The approaches used to tackle this class of problems are many. The goal of this event is to bring together two scientific communities: the (deterministic) numerical analysis community and the statistical/probabilistic community to meet and discuss this topic. By encouraging the coupling between deterministic and stochastic methods, both at a theoretical and applied level, we hope to bring some answers to uncertainty quantification in science.

CEMRACS general structure

CEMRACS 2006 will consist of two joint events:

- A summer school on random modeling and uncertainty management (July 24-July 28).
- An intensive research program of five weeks (July 28 - September 1). A one-hour talk will be given each morning in the conference room. The remaining part of the day will be devoted to the research activity in teams.

Partners

The CEMRACS is a scientific event of the SMAI (the french Society of Applied and Industrial Mathematics).

Program of the Summer School (July 24 July - July 28, 2006)

Lectures will be given by the confirmed speakers:

- Guillaume Bal (Department of Applied Physics and Applied Mathematics, Columbia University): Wave propagation in random media.
- Hermann Matthies (Institute of Scientific Computing, TU Braunschweig): Formulation and numerical sparse tensor Galerkin methods for stochastic mechanics.
- George Papanicolaou (Mathematics Department, Stanford University): Imaging in random media.
- Christoph Schwab (Seminar for Applied Mathematics, ETH Zurich): Galerkin methods for operator equations with stochastic data.

The list will be complemented by additional lectures and talks, in particular on experimental design and sensitivity analysis, that will be posted on the CEMRACS 2006 web site `http://smai.emath.fr/cemracs/cemracs06/`.

Program of the Research Center (July 28 - September 1, 2006)

In the research program, every participant will work in a team on a project proposed by an industrial or an academic partner. Each team will be composed of young researchers assisted by one or more senior researchers. The commitment for the young researchers is to be present for the whole period of the research center. The commitment for the senior researchers is to ensure the management of the project that is mainly precise definition of the subject and supervision of the project. Other visiting scientists, interested in the ongoing research, can be associated to the program for shorter periods. The projects will be posted on the CEMRACS 2006 web site. Possible topics are:

- Spectral polynomial chaos expansions.
- Karhunen-Loeve representations.
- Experimental design.
- Galerkin methods for stochastic partial differential equations.
- Sensitivity analysis.
- Monte Carlo methods.
- Rare event simulations.
- Wave propagation in random media.
- Imaging in disordered media.
- Radiative transfer.
- Homogenization.
- Diffusion approximation.

Organizers

- Josselin Garnier (Paris), chair
- Guillaume Bal (New York)
- Didier Lucor (Paris)

Scientific committee

- Patrick Lascaux, CEA
- Patrick Le Tallec, École Polytechnique
- Pierre-Louis Lions, Collège de France
- Yvon Maday, Université Paris VI
- Etienne Pardoux, Université de Provence
- Olivier Pironneau, Université Paris VI

Venue

CEMRACS 2006 will take place at the International Center of Mathematicel Research (CIRM), located in Luminy, Merseille. All the facilities of the CIRM center will be 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 the web site: `http://www.cirm.univ-mrs.fr.`

Application form

First Name — Family Name

Affiliation

Address

Zip code — City

Country

Phone — Fax

E-mail

Payment

- ☐ By check to the SMAI CEMRACS
- ☐ By bank transfer
- ☐ By order form (french institutions only)

Request for financial support
(young researchers only, see General informations)

- ☐ Yes
- ☐ No

Date — Signature

Please, return this form filled to

J. Garnier, CEMRACS 2006
UFR Mathématiques, case 7012
2 Place Jussieu
Université Paris 7
75251 Paris Cedex 05
France

General informations

Fees for housing and meals

- Single room, 3 meals: ..... 68.61 euros per day.
- Lunch or dinner: ..... 13.25 euros.
- Breakfast: ..... 4.00 euros.

Registration fees for the Summer School: 150 euros (free for the participants to the Research Center).

Application process (according to availability): to apply to CEMRACS 2006, please use rather the online application form available at the following address:

`http://smai.emath.fr/cemracs/cemracs06`

Otherwise, use the included application form and send it to the mentionned address.
Payments for the registration fees should be made - only in euro - by sending a check or an order form to SMAI CEMRACS, or by bank transfer to:

SMAI CEMRACS 2006,
Institut H. Poincaré
11, rue Pierre et Marie Curie
75231 Paris Cedex 05
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 made directly to CIRM during the CEMRACS.

Please, notice that:

- It is possible to attend only the Summer School.
- Young researchers attending the Research Center must also attend the Summer School.

Financial support

Young researchers coming for the whole period to work on a project can apply for a financial support covering the local and travel expenses. In any case, young researchers are invited to send a CV and a letter detailing their scientific experience and their motivation.

CEMRACS 2006

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

Random Modeling
and
Uncertainty Management

Centre International de Rencontres Mathématiques
CIRM (Marseille, France)

July 24 - September 1, 2006

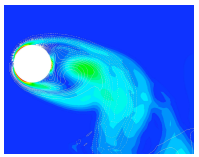


Lectures

July 24 - July 28
G. Bal (New York)
G. Papanicolaou (Stanford)
H. Matthies (Braunschweig)
C. Schwab (Zurich)

Research Projects

July 28 - September 1
Financial support: CNRS, SMAI.
Industrial Partners: see CEMRACS web site.



Contact: cemracs@emath.fr
Web site: `http://smai.emath.fr/cemracs/cemracs06/`