

## **Editorial**

### **Foreword**

**Gabriel Caloz and Monique Dauge**

This volume contains the proceedings of the

#### **Canum 2006**

held in Guidel (Brittany, France) May 29 - June 2, 2006.

The *Congrès National d'Analyse Numérique* (CANUM) takes place on alternate years with the *Congrès National de Mathématiques Appliquées et Industrielles*. It is organized by an applied mathematics department under the aegis of the *Société de Mathématiques Appliquées et Industrielles* in France. It intends to present current developments in applied mathematics, numerical analysis and scientific computing through plenary lectures and mini symposia in specialized fields of applications. It also offers PhD students and young researchers the chance to give talks on their work.

CANUM 2006 has been organized by the Numerical Analysis team of the *Institut de Recherche Mathématique de Rennes* (IRMAR). The scientific committee of the congress consisted of François Alouges (Université Paris-Sud 11), Marc Briane (INSA de Rennes), Gabriel Caloz, Monique Dauge (Université de Rennes 1), Jean-Marc Hérard (Université de Provence), Patrick Joly (INRIA Rocquencourt), Mohamed Masmoudi (INSA de Toulouse), Valérie Perrier (INP Grenoble), Michel Pierre (Antenne de Bretagne de l'ENS Cachan), Denis Serre (ENS Lyon).

The program of the Canum 2006 included 10 plenary lectures and 6 mini symposia as listed below in more detail. Moreover, let us mention that a large part of the speakers in the mini symposia came from industry or from other scientific areas than mathematics.

A volume of ESAIM Proceedings is devoted to each of these annual conferences, and we accepted to be editors of the present issue. This volume gathers papers which have been contributed in relation with plenary lectures or minisymposia.

Finally we would like to thank the following institutions for their financial support:

- Université de Rennes 1,
- École Normale Supérieure de Cachan,
- INRIA-IRISA,
- Institut National des Sciences Appliquées de Rennes,  
and the *collectivités locales*
- Rennes Métropole,
- Conseil général de l'Ille et Vilaine,
- Région Bretagne

Rennes, September 28, 2007.

Gabriel Caloz and Monique Dauge

## CANUM 2006 - Plenary lectures

*with links to abstracts on the congress web page.*

- Anne-Sophie Bonnet-Bendhia  UMR POEMS  
CNRS / INRIA / ENSTA, Paris, France  
[Propagation du son dans un écoulement : simulation numérique du régime périodique établi](#)
- Yann Brenier  Laboratoire J.Y. Dieudonné  
Université de Nice-Sophia-Antipolis, Nice, France  
[Transport optimal de courants et électrodynamique](#)
- Thierry Colin  Mathématiques Appliquées de Bordeaux  
Université de Bordeaux I, Bordeaux, France  
[Couplage Raman-Landau pour l'interaction laser-plasma](#)
- Jean-Michel Coron  Département de Mathématiques  
Université de Paris XI, Paris, France  
[Contrôlabilité et non linéarité](#)
- Jean-Frédéric Gerbeau  Projet REO  
INRIA, Roquencourt, France  
[Ecoulements sanguins et interaction fluide-structure](#)
- Laurence Halpern  LAGA, Institut Galilée  
Université de Paris XIII, Paris, France  
[Local space-time refinement via optimized Schwarz waveform relaxation](#)
- Claes Johnson  Department of Mathematics  
Chalmers University of Technology, Göteborg, Suède  
[Resolution of Three Scientific Mysteries by Computation](#)
- Graeme Milton  Department of Mathematics  
University of Utah, Salt Lake City, Utah USA  
[Cloaking: a new phenomenon in electromagnetism](#)
- Roberto Natalini  Istituto per la Applicazioni del Calcolo M. Picone  
CNR Italia, Rome, Italie  
[Dissipative hyperbolic systems: asymptotic behavior and numerical approximation](#)
- Michael Vogelius  Department of Mathematics, Rutgers,  
University of New Jersey, New Brunswick, New Jersey USA  
[Representation formulas for the field perturbations caused by low volume fraction inhomogeneities](#)

## CANUM 2006 - Mini symposia

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Session	Organized by	
<a href="#">Mer - Halieutique</a>	Daniel Priour Stéphanie Mahevas	IFREMER IFREMER, Nantes
<a href="#">Simulation moléculaire</a>	Philippe Chartier	IPSO IRISA Rennes
<a href="#">Modélisation et simulation de matériaux ferromagnétiques</a>	François Alouges	Université de Paris Sud
<a href="#">Méthodes numériques appliquées aux antennes, à la propagation et à la CEM</a>	Ronan Sauleau	IETR Rennes
<a href="#">Optimisation de forme</a>	Jan Sokolowski Alain Dervieux	Université de Nancy I INRIA Sophia-Antipolis
<a href="#">Méthodes rapides</a>	Bruno Després Abderrahmane Bendali	CEA INSA de Toulouse

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