

**Cimpa-Unesco-Egypt School**  
**Recent developments in the theory**  
**of elliptic partial differential equations**

**Arab Academy for Science and Technology**  
**(Alexandria, Egypt)**

**January 26 – February 3, 2009**

**Schedule and titles**  
**of the courses, seminars and communications**

**Organizing institutions**

AAST: Arab Academy for Science and Technology (Alexandria, Egypt)

CIMPA: Centre International de Mathématiques Pures et Appliquées  
(Nice, France)

**Sponsors**

Ambassade de France en Egypte (French Embassy in Egypt)

ICTP: The Abdus Salam International Centre for Theoretical Physics  
(Trieste, Italy)

IMU: International Mathematical Union

**Organizers**

Mohamed Abdalla Darwish (Alexandria University, Damanhour, Egypt)

Alaa A. El-Bary (Arab Academy for Science and Technology, Alexandria,  
Egypt)

Ahmad El Soufi (Université François Rabelais, Tours, France)

Mustapha Jazar (Université Libanaise, Tripoli, Liban)

François Murat (Université Pierre et Marie Curie, Paris, France)

## CIMPA-UNESCO-EGYPT School Alexandria

First period: January 26 – January 29, 2009

### Schedule

	<b>Monday</b> January 26	<b>Tuesday</b> January 27	<b>Wednesday</b> January 28	<b>Thursday</b> January 29
09:00-09:55	Opening ceremony	Jaoua	Flori	Ferone
10:00-10:30	Coffee break	Coffee break	Coffee break	Coffee break
10:30-11:25	Ferone	Smets	Ferone	Smets
11:30-12:25	Ferone	Smets	Ferone	Murat
12:30-14:30	Lunch break	Lunch break	Lunch break	Lunch break
14:30-15:25	Jaoua	Jaoua	Smets	
15:30-16:25	Jaoua	Jaoua	Smets	
16:30-17:00	Coffee break	Coffee break	Coffee break	
17:00-17:55	C1: Darwish	Flori	Murat	
18:00-18:25		C2: Pan	C3: Al Sayed	

**CIMPA-UNESCO-EGYPT School Alexandria**  
**Second period: January 31 – February 3, 2009**  
**Schedule**

	<b>Saturday</b> January 31	<b>Sunday</b> February 1	<b>Monday</b> February 2	<b>Tuesday</b> February 3
09:00-09:55	Pacard	Pacard	Esteban	Porretta
10:00-10:30	Coffee break	Coffee break	Coffee break	Coffee break
10:30-11:25	Esteban	Vanninathan	Porretta	Vanninathan
11:30-12:25	Esteban	Vanninathan	Porretta	
12:30-14:30	Lunch break	Lunch break	Lunch break	Lunch break
14:30-15:25	Porretta	Esteban	Vanninathan	
15:30-16:25	Porretta	Esteban	Vanninathan	
16:30-17:00	Coffee break	Coffee break	Coffee break	
17:00-17:55	C4: Muha C5: Boughammoura	C6: El-Fakharany C7: Marcos	C9: Anantharaman C10: Bouchekif	
18:00-18:25		C8: Ainouz	C11: Rebah	

# CIMPA-UNESCO-EGYPT School Alexandria

## Titles of the courses and seminars

### Courses

**Maria J. Esteban**

Introduction to variational methods for non-compact problems

**Vincenzo Ferone**

Symmetrization methods and applications to PDEs

**Mohamed Jaoua**

Data completion and applications to some inverse problems

**Alessio Porretta**

Elliptic equations with first order terms

**Didier Smets**

Geometric flows and motion of thin interfaces

**Muthusamy Vanninathan**

Homogenization problems and Bloch waves

### Seminars

**Fabien Flori**

Properties of some PDEs related to free boundary problems

**François Murat**

Non elliptic problems with right-hand side in  $L^1$

**Frank Pacard**

Geometric aspects of the Allen-Cahn equation

# CIMPA-UNESCO-EGYPT School Alexandria

## Titles of the communications of the first period

Communication C1: Monday, January 26, 17:00-17:25

**Mohamed Abdalla Darwish**

Existence and asymptotic stability of solutions  
of a perturbed quadratic fractional integral equation

Communication C2: Tuesday, January 27, 18:00-18:25

**Jiaqing Pan**

The expanding behavior of the set of positive solutions  
of a degenerate parabolic equation

Communication C3: Wednesday, January 28, 18:00-18:25

**Waad Al Sayed**

Large solutions for some parabolic problems

## CIMPA-UNESCO-EGYPT School Alexandria

### Titles of the communications of the second period

Communication C4: Saturday, January 31, 17:00-17:25

**Boris Muha**

Modelling and analysis of a fluid flow  
through a junction of pipes with lid

Communication C5: Saturday, January 31, 17:30-17:55

**Ahmed Boughammoura**

Homogenization of a degenerate parabolic problem  
in a highly heterogeneous medium with fibers

Communication C6: Sunday, February 1, 17:00-17:25

**Mohamed El-Fakharany**

Spectral analysis for some model of fluid flow

Communication C7: Sunday, February 1, 17:30-17:55

**Aboubacar Marcos**

Solvability of a quasilinear problem  
under nonresonance conditions on the potential

Communication C8: Sunday, February 1, 18:00-18:25

**Abdelhamid Ainouz**

Homogenization of a contact problem in linear viscoelasticity

Communication C9: Monday, February 2, 17:00-17:25

**Arnaud Anantharaman**

Using concentration-compactness theory  
to analyze some chemistry models

Communication C10: Monday, February 2, 17:30-17:55

**Mohammed Boucekif**

On singular elliptic equations with a concave term  
and critical Caffarelli-Kohn-Nirenberg exponent

Communication C11: Monday, February 2, 18:00-18:25

**Dirar Rebah**

Steady vortex rings and rearrangement